Symptoms of Distress and Imbalance in Children

Nijboer, J.M.

Rijks*universiteit* **Groningen**

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Symptoms of Distress and Imbalance in Children:

A Study About the Effects of Individual and Environmental Factors on Symptoms of Distress and Imbalance in Children.

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J.M. Nijboer
University of Groningen, Faculty of Behavioural and Social Sciences, Research Master Human Behaviour in Social Contexts

Dr. J. Bouma
University Medical Centre Groningen, SHARE/Science Shop Health Care

Prof. dr. A.E.M.G. Minnaert
University of Groningen, Faculty of Behavioural and Social Sciences

Colofon

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Auteur:	J.M. Nijboer
Begeleiding:	Dr. J. Bouma, coördinator Wetenschapswinkel Geneeskunde en Volksgezondheid UMCG Prof. dr. A.E.M.G. Minnaert, Faculteit Gedrags- en Maatschappijwetenschappen R*u*G
Vraagindiener:	Bureau Remedie, mevr. Marjan Pot
Uitgave:	Wetenschapswinkel Geneeskunde en Volksgezondheid UMCG
Adres:	Antonius Deusinglaan 1, 9713 AV Groningen
Telefoon:	050-3633109
E-mail:	j.bouma@med.rug.nl
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Voorwoord

In september 2006 begon ik met een omvangrijk project. In het kader van mijn masterthese voor de researchmaster Human Behaviour in Social Contexts zou ik bij de Wetenschapswinkel Geneeskunde en Volksgezondheid uit gaan zoeken of kinderen burnout klachten kunnen krijgen. Een interessante, maar zeker ook ingewikkelde vraag. Omdat het concept burnout niet direct toepasbaar is op kinderen, heb ik eerst twee literatuurstudies verricht. Gaandeweg werd duidelijk dat binnen het kader van dit onderzoek het niet mogelijk zou zijn om een goede definitie voor burnout bij kinderen op te stellen. Daarom richt het onderzoek zich uiteindelijk op stress en overbelasting bij kinderen.

Maar liefst 406 kinderen en hun leerkrachten hebben een vragenlijst ingevuld. Zonder de gastvrijheid van alle deelnemende scholen had dit onderzoek niet uitgevoerd kunnen worden. Daarom wil ik op deze plaats alle leerkrachten en kinderen bedanken voor hun medewerking en inzet. Na de geweldige respons moesten heel veel vragenlijsten worden verwerkt. Ik ben Elleke heel erg dankbaar voor haar hulp bij het invoeren van alle data.

Veel dank gaat ook uit naar Jelte Bouma en Alexander Minnaert voor hun prettige en kritische begeleiding, maar ook voor hun vertrouwen en de tijd die zij mij hebben gegeven om dit onderzoek tot een goed einde te brengen. Ik wil mijn ouders, Henk en Marian, bedanken voor hun nimmer aflatende steun, vertrouwen en belangstelling. Tot slot bedank ik Ruurt: jouw luisterend oor en bemoedigende woorden zijn van onschatbare waarde geweest!

Hoewel ik dit onderzoek nu met voldoening afsluit, heb ik gedurende mijn periode als masterstudent orthopedagogiek (2007-2008) ontdekt dat het werk van orthopedagoog in de praktijk beter bij mij past dan het werk van onderzoeker. Desalniettemin is het volgen van de researchmaster een verrijking van mijn studieperiode geweest. Ik hoop de academische vaardigheden die ik in deze opleiding geleerd heb, in de toekomst ook in de praktijk te kunnen inzetten.

Marijn Nijboer
Groningen, februari 2009

Samenvatting

Inleiding

In Nederlandse media wordt wel eens gesuggereerd dat kinderen het steeds drukker zouden krijgen. Naast een volle agenda, zouden kinderen steeds meer aan hun hoofd hebben doordat kinderen vaker opgroeien met gescheiden ouders, doordat de druk om te presteren op school toeneemt, etc.. Het is vaak onduidelijk waar deze meningen op gebaseerd zijn en, als ze een grond van waarheid zouden bevatten, om welke kinderen het gaat en hoe erg het is. Teneinde hier wat meer zicht op te krijgen, is een onderzoek uitgevoerd, gericht op de vraag welke factoren een rol spelen bij stress en overbelasting bij kinderen.

Methode

Er is een vragenlijst afgenomen in groep 7 en 8 op 14 scholen in Noord-Drenthe. In totaal hebben 406 kinderen (10-13 jaar) en 19 leerkrachten deelgenomen aan het onderzoek. De kinderen vulden vragen in over fysiek en psychisch welbevinden, humeur, zelfbeeld, thuis, school, leeftijdgenoten, coherentiegevoel en coping. Terwijl de vragenlijst bij de kinderen klassikaal werd afgenomen, vulden de leerkrachten over elke leerling een aantal vragen in m.b.t. eventuele beperkingen (ziekte, stoornis, leerprobleem), schoolprestaties, symptomen van hyperactiviteit en aandachtstekort, emotionele symptomen en problemen met leeftijdgenoten.

Prevalentie

Eerst is uitgezocht in hoeverre symptomen van stress en overbelasting bij kinderen überhaupt voorkomen. Deze symptomen zijn gemeten middels de factoren Kwaliteit van Leven (Fysiek Welbevinden, Psychisch welbevinden, Stemming en Emoties), Psychosomatische Symptomen (Emotionele Symptomen, Fysieke Klachten), Schoolabsentie en Hyperactiviteit/Aandachtstekort. De 406 kinderen in de steekproef bleken een relatief hoge kwaliteit van leven te hebben: 38.4% heeft een hoge score op Fysiek Welbevinden (normgroep: 31%), 41.4% heeft een hoge score op Psychisch Welbevinden (normgroep: 31%) en 33.5% heeft een hoge score op Stemming en Emoties (normgroep: 31%). Er zijn geen bijzonderheden gevonden met betrekking tot Psychosomatische Symptomen (Emotionele Symptomen, Fysieke Klachten), Schoolabsentie en Hyperactiviteit/Aandachtstekort.

Individuele factoren

Vervolgens is uitgezocht welke individuele factoren samenhangen met symptomen van stress en overbelasting. Kinderen met hogere ambities en betere schoolpresaties vertoonden minder symptomen van Hyperactiviteit/Aandachtstekort. Daarnaast scoorden kinderen met een positief zelfbeeld en een effectieve copingstijl hoger op de aspecten van Kwaliteit van Leven (Fysiek Welbevinden, Psychisch welbevinden, Stemming en Emoties).

De belangrijkste factor bleek de aanwezigheid van een beperking (ziekte, stoornis, leerprobleem): kinderen met een beperking lieten op alle domeinen meer symptomen van stress en overbelasting zien dan kinderen zonder een beperking. Van de kinderen met een beperking heeft 30.6% een lage score op Fysiek Welbevinden (kinderen zonder beperking: 21.6%), 24.5% heeft een lage score op Psychisch Welbevinden (kinderen zonder beperking: 15.8%) en 32.0% heeft een lage score op Stemming en Emoties (kinderen zonder beperking: 22.8%). Volgens de leerkrachten vertonen de kinderen met beperkingen ook meer Emotionele Symptomen (9.7 % van de kinderen met een beperking vs. 2.3% van de kinderen zonder beperking), meer Fysieke Klachten (6.2% van de kinderen met een beperking vs. 1.2% van de kinderen zonder beperking), en meer symptomen van Hyperactiviteit en Aandachtstekort (14.6% van de kinderen met een beperking vs. 9.3% van de kinderen zonder beperking). Daarnaast zijn ze volgens de leerkrachten vaker afwezig (6.8% van de kinderen met een beperking is vaak afwezig vs. 2.7% van de kinderen zonder beperking).

Omgevingsfactoren

Verschillende omgevingsfactoren (op school, in de thuissituatie en met leeftijdgenoten) bleken ook samen te hangen met symptomen van stress en overbelasting. De verschillende aspecten van Kwaliteit van Leven (Fysiek Welbevinden, Psychisch welbevinden, Stemming en Emoties), zijn hoger bij kinderen die zich thuis en op school op hun gemak voelen, die zich geaccepteerd voelen door leeftijdgenoten, die voldoende sociale steun ervaren en beschikken over voldoende financiële middelen.

Daarnaast bleken de gezinssamenstelling (kerngezin vs. niet-traditionele gezinsvormen zoals éénouder gezin) en het meemaken van ‘life-events’ (bv. echtscheiding van de ouders) samen te hangen met Psychisch welbevinden en met Psychosomatische Symptomen (Emotionele Symptomen, Fysieke Klachten). Van de kinderen in kerngezinnen heeft 16.1% een lage score op Psychisch Welbevinden, terwijl 33.3% van de kinderen in een niet-traditioneel gezin een lage score op Psychisch Welbevinden heeft. Volgens de leerkrachten komen Psychosomatische Symptomen ook vaker voor bij kinderen in niet-traditionele gezinnen. 11.5% van de kinderen in niet-traditionele gezinnen laten af en toe Emotionele Symptomen (zoals onzeker, angstig en snel overstuur) zien, versus 2.9% van de

kinderen in kerngezinnen. Kinderen in niet-traditionele gezinnen vertonen ook vaker Fysieke Klachten: 6.6% van de kinderen in niet-traditionele gezinnen vs. 2.3% van de kinderen in kerngezinnen. Voor kinderen die een life-event hebben meegemaakt, zijn de percentages in hoge mate vergelijkbaar.

Coherentiegevoel en autonomie

Hoe een individu de gebeurtenissen in zijn/haar omgeving ervaart, kan een rol spelen in het ontstaan van stress en overbelasting. Met andere woorden, wat voor de één stressvol is, hoeft dat voor de ander nog niet te zijn. Dit geldt niet alleen voor volwassenen, maar ook voor kinderen. Daarom zijn de factoren Coherentiegevoel (de mate waarin een individu situaties als begrijpelijk, hanteerbaar en zinvol ervaart) en Gevoelens van Autonomie (keuzevrijheid en onafhankelijkheid) opgenomen. Kinderen die voldoende autonomie ervaren en kinderen met een sterk coherentiegevoel scoorden hoger op de aspecten van Kwaliteit van Leven (Fysiek Welbevinden, Psychisch Welbevinden, Stemming en Emoties).

Psychisch Welbevinden en Emoties

Tot slot is uitgezocht wat voor gezamenlijk effect verschillende factoren hebben op symptomen van stress en overbelasting bij kinderen, met name wat betreft Psychisch Welbevinden en Emoties. Psychisch welbevinden en Emoties bleken voor een groot deel bepaald te worden door de thuissituatie, coherentiegevoel, en sociale acceptatie door leeftijdgenoten. Met andere woorden, kinderen die zich thuis op hun gemak voelen, die situaties als begrijpelijk, hanteerbaar en zinvol ervaren, en die zich sociaal geaccepteerd voelen door leeftijdgenoten, zijn gelukkiger en in een beter humeur.

Conclusie

Met de overgrote meerderheid van de kinderen in de steekproef is niets aan de hand: 57.4% voelt zich thuis op zijn gemak, ervaart situaties als begrijpelijk, hanteerbaar en zinvol, en voelt zich sociaal geaccepteerd door leeftijdgenoten. Deze kinderen zijn doorgaans gelukkig en in een goed humeur en zijn dus goed ‘beschermd’ tegen stress en overbelasting.

Een kleine groep (6.6%) voelt zich thuis niet op zijn gemak, ervaart situaties als onbegrijpelijk, moeilijk hanteerbaar en zinloos, en voelt zich niet geaccepteerd door leeftijdgenoten. Dit zijn de kinderen die zich ongelukkig voelen en geen plezier in het leven ervaren. Deze kinderen zijn mogelijk vatbaar voor stress en overbelasting.

In dit onderzoek naar symptomen van stress en overbelasting bij kinderen bleek coherentiegevoel een belangrijke rol te spelen. Coherentiegevoel bepaalt mede de manier waarop een persoon situaties ervaart, en dus de mate waarin deze als stressvol ervaren

worden. Daarom kan het zinvol zijn om met name bij de kinderen die vatbaar zijn voor stress en overbelasting aandacht te besteden aan het verhogen van hun coherentiegevoel. Aangezien er nog weinig bekend is over coherentiegevoel bij kinderen, zal hier eerst meer onderzoek naar gedaan moeten worden.

1. Introduction

This master thesis is written as a result of a question from pedagogical practice submitted at the science shop of the University Medical Centre in Groningen. The general question was whether children can get burnout. Although Dutch media suggest that children are too busy nowadays[1], in science few is known about potentially burned-out children.

As the definition and conceptualization of burnout is related to adults' employment (Angerer, 2003; Iacovides, Fountoulakis, Kaprinis, & Kaprinis, 2003; Maslach, Schaufeli, & Leiter, 2001), the diagnosis of burnout seems not suitable for children. It was argued that children who are tired due to busy and stressful lives should be diagnosed with Chronic Fatigue Syndrome (CFS), a diagnosis that is better applicable to children (Hielkema, 2006). However, CFS is mainly seen as a medical problem, whereas burnout is much more related to environmental stressors. Therefore it was argued that children who are exhausted due to environmental stressors, should better be given the diagnosis (school)burnout (Nijboer, 2007).

In order to develop a concept of burnout in children, burnout and CFS were compared in a literature review (Nijboer, 2006), of which the main results will be presented in section 1.1. Section 1.2 reflects the main results of the second literature study (Nijboer, 2007), in which childhood stress and the ways children cope with stressors were investigated. The research model will be presented in section 1.3. Section 1.4 presents the research questions.

1.1 Burnout and CFS

1.1.1 Classification

Both burnout and CFS are not separately classified by the International Statistical Classification of Diseases and Related Health Problems (tenth revision) and the Diagnostic and Statistical Manual of Mental Disorders (fourth edition). In the ICD-10 (World Health Organization, 1992), burnout is classified under 'problems related to life-management difficulty' and is described as a state of vital exhaustion. The ICD-10 classifies CFS as *Neurasthenia*, with a subtype characterised by fatigue after mental effort and a decrease in occupational performance, and a subtype characterised by exhaustion after only minimal

[1] In 2002, Sire (Stichting Ideële Reclame) started the campaign "Kinderen hebben het druk. Van wie zouden ze dát nou hebben?". The campaign consisted of advertisements in newspapers, and television and radio commercials.

effort and feelings of physical weakness and muscular aches. Parallels can be drawn between the first subtype of neurasthenia (CFS) and burnout.

In the DSM-IV, CFS is together with other syndromes with unexplained somatoform complaints classified as *Undifferentiated Somatoform Disorder* (Treffers, 2003). Diagnostic criteria are: a) one or more physical complaints (e.g. fatigue or loss of appetite); b) duration of the disturbance of at least six months; c) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning; and d) the symptoms cannot be explained by any other medical condition or mental disorder (Frances, First, & Pincus, 1995).

1.1.2 Symptoms

Although the emphasis of both syndromes is somewhat different, many symptoms mentioned in the literature are more or less the same (Nijboer, 2006). Burnout focuses on work-related problems, with the final phase of burnout being decreased effectiveness and work performance (Iacovides et al., 2003; Maslach et al., 2001). However, the onset of burnout symptoms starts earlier with emotional exhaustion (Iacovides et al., 2003) or other dysphoric symptoms such as extreme fatigue and depression (Angerer, 2003; Maslach et al., 2001). Although less prevalent, also physical symptoms can occur, such as insomnia (sleeplessness), dizziness, nausea, headaches, muscle pain, and sore throat (Angerer, 2003).

The main symptom of CFS is an unexplained, debilitating fatigue usually worsened by exertion and not resolving with rest (Bell, Jordan, & Robinson, 2001). Many other physical symptoms are reported in children with CFS. The most common symptoms are comparable to physical symptoms in burnout: sore throat, headaches, sleeping problems, muscle pain, dizziness, nausea, and abdominal pain. Although the emphasis of CFS is on fatigue and physical symptoms, also many mental or behavioural problems exist in children with CFS, such as mood disturbance and anxiety symptoms. Moreover, severe fatigue is associated with a decrease in occupational performance or coping efficiency in daily tasks, cognitive dysfunction, and difficulties with memory, concentration, and attention (Bell et al., 2001; Garralda, 1999; Garralda & Rangel, 2002; Jordan et al., 1998; Saidi & Haines, 2006).

So not only physical symptoms are about the same, also mental or behavioural problems in burnout and CFS are comparable, with fatigue, emotional problems, mood disturbance/depression, and decreased effectiveness and occupational performance being major problems in both disorders.

1.1.3 Causes

Literature on causes of either burnout or CFS have very different approaches. Whereas burnout is mainly approached from a situational perspective, most approaches to CFS are medical (Nijboer, 2006).

The main cause of burnout is job stress, but job stress alone does not cause burnout. The job-person fit model takes both situational and individual characteristics into account and argues that burnout is caused by mismatches between people and their work-settings (Maslach et al., 2001). Karasek's demand-control model shows that high job demands and low employee control enlarge job stress and therefore increase the risk of burnout (Karasek, 2004; Probst, 2005). Whatever model of the causes of burnout is used, it is a matter of imbalance between resources, values, expectations, and environmental demands (Iacovides et al., 2003).

According to most literature, a complex interaction of physiological, cognitive, affective, and psychosocial factors seems most likely in causation of CFS (Garralda & Rangel, 2002; Nijboer, 2006), but the causes of CFS are actually unknown. However, the literature hypothesises three main causes: medical/physical, psychological/psychiatric, and interactions between these two (Nijboer, 2006). Medical causes that can play a role are immune dysfunction and/or viral infection, and abnormalities in autonomic nervous system function (Garralda & Rangel, 2002; Jordan et al., 1998; Patel, Smith, Chalder, & Wessely, 2003; Richards, 2000). Also genetic explanations are given (Ter Wolbeek, Van Doornen, Kavelaars, & Heijnen, 2006). No empirical evidence for psychiatric theories concerning the origin of CFS is found so far (Jordan et al., 1998). Nevertheless, some psychological aspects are associated with CFS, such as emotional upset, (school) stresses, and educational and social demands (Patel et al., 2003; Ter Wolbeek et al., 2006). Also impressive life-events, such as secondary school transfer, could play a role in triggering CFS (Sharpe, Chalder, Palmer, & Wessely, 1997). To determine how different factors interact in causation of CFS, different interactional models are designed. The ways in which biological, psychological, and social factors can interact together, is explained by the biopsychosocial model. This model is multifactorial and emphasises interactions between different factors (Van de Putte, 2006).

Although burnout and CFS are thought to have very different etiologies, some overlap can be seen in psychological aspects: stress and demands play a role in causation and maintenance of both disorders.

1.1.4 Risk factors

Many factors are identified in both burnout and CFS research. With respect to burnout, individual and situational factors can be distinguished (Nijboer, 2006). Some individual risk factors are, among many others, poor self-esteem, being depression-prone,

avoidant coping style, high ambition, high educational level, and low achievement. Another important factor is perceived control: the more a person believes he/she has control over events, the less stress he/she experiences (Iacovides et al., 2003; Maslach et al., 2001). Environmental factors that could create a risk of burnout development are high expectations and job demands, and absence of resources such as skill use and worksite support (Iacovides et al., 2003).

Also CFS research identified many factors, of which most have to do with personality traits or disorders. A 'typical' child with CFS is insecure, conscientious, ambitious, anxious, vulnerable to depression, and has a poor self-esteem and ineffective coping skills (Garralda, 1999; Garralda & Rangel, 2002; Jordan et al., 1998; Ter Wolbeek, 2006). With respect to environmental factors, high SES can be a risk factor for development of CFS (Garralda & Rangel, 2002; Jordan et al., 1998).

Although many different and incomparable factors were found in the literature on burnout and CFS (Nijboer, 2006), the previous part reflects some important corresponding risk factors. Both in adults with burnout and in children with CFS poor self-esteem, ineffective coping, high ambition, and vulnerability to depression are observed. Educational level was found to be positively related to burnout. In other words, the higher the level of education, the higher the risk of burnout development. In many studies, educational level is seen as an indicator of SES. In that sense, the roles of educational level in burnout and of SES in CFS are comparable, as most young CFS patients stem from high SES families (Nijboer, 2006).

1.1.5 Outcomes and prognosis

Both burnout and CFS have a significant impact on all areas of life. Nevertheless, results on duration and severity of symptoms, recovery speed, and quality of recover are very diverse (Nijboer, 2006).

The short term outcomes of burnout are on the domain of job performance, characterised by decreased productivity, satisfaction, and commitment (Maslach et al., 2001). Significantly more days are lost from work and productivity is reduced. On the long term, both physical and mental health outcomes are identified, which afflict every aspect of the individual's life and therefore have a negative effect on home life as well as work (Angerer, 2003; Iacovides et al., 2003).

Short term outcomes of CFS are characterised by functional impairment: marked inactivity, prolonged bed rest, absence from school, and loss of contact with the peer group (Garralda & Rangel, 2002; Rangel, Garralda, Levin, & Roberts, 2000). Results on long term outcomes are varying: some studies point out that even after recovery several children are left

with psychopathology (e.g. anxiety disorders), residual symptoms and handicaps (Garralda & Rangel, 2002; Rangel et al., 2000), while others argue that most children recover completely (Bell et al., 2001; Patel et al., 2003). In general, outcomes are better after shorter periods of illness or after less severe forms of the illness (De Jong et al., 1997; Jordan et al., 1998). With respect to educational outcomes, CFS is a common cause of long term school absenteeism, and very often there is a persisting tendency to miss school even after recovery (Rangel et al., 2000; Sankey, Hill, Brown, Quinn, & Fletcher, 2006).

A parallel could be drawn between professional outcomes in burnout and educational outcomes in CFS children. In both cases, many days are lost from work/school and attempts to return to work/school are often not succeeded completely (Nijboer, 2006).

1.1.6 Assessment

The most widely used clinical burnout assessment is the Maslach Burnout Inventory (MBI), which measures exhaustion, cynicism, and reduced professional efficacy (Angerer, 2003; Maslach et al., 2001). In research, burnout is often assessed by absenteeism from work. (Iacovides et al., 2003).

A useful classification of CFS is provided by the Oxford CFS criteria, but these criteria are not adapted for children (Jordan et al., 1998). Most literature proposes a minimum symptom duration of three months instead of six as a good adaptation (Richards, 2000; Saidi & Haines, 2006).

At the present time, no appropriate instruments are available to evaluate fatigue and disability in CFS children. Therefore, the diagnosis is one of exclusion (Jordan et al., 1998). To exclude any other explanatory medical or psychiatric disorder, many physical investigations are done, as well as a full and comprehensive medical and psychiatric history taking. Other helpful assessments are identification of predisposing, precipitating and perpetuating factors, cognitive/educational assessment, physiotherapy and occupational therapy assessments, observations of the child, and an interview with both child and parents (Garralda, 1999; Garralda & Rangel, 2002; Richards, 2000). However, the question remains whether it is possible to exclude all medical and psychiatric conditions. Moreover, especially children with disabilities might be at risk to become exhausted. By making a diagnosis of exclusion, their problems in daily life might be underestimated.

Due to the lack of an appropriate, antecedent assessment focusing on the origin of CFS, assessment sometimes focuses on school absence, which is at least reliably measurable (Nijboer, 2006). Absenteeism from school is a good measure for functional impairment and severity of CFS (Patel et al., 2003), but it should be noted that absenteeism actually is a consequence of chronic fatigue and should therefore not be interpreted as a measure of the

illness itself (Nijboer, 2006). The same critical note should be added to assessment of burnout using hours of absenteeism from work. As for both disorders, absenteeism from work/school is used as a measure, this again draws a parallel between work for adults and school for children (Nijboer, 2006).

1.1.7 Comorbidity and differential diagnosis

Both burnout and CFS are related to anxiety and depression (Nijboer, 2006). Especially depression can occur secondary to burnout. However, burnout is more job-related and situation-specific than general depression (Angerer, 2003; Maslach et al., 2001). Despite the possible comorbidity of burnout and depression, depressive symptoms are suggested to be distinct results of job stress (Iacovides et al., 2003).

Many physical and mental disorders should be distinguished from CFS. Physical diseases may cause easy fatigability, so all medical conditions in which fatigue can occur should be excluded (Bell et al., 2001; De Jong et al., 1997; Jordan et al., 1998). Mental disorders that should be differentiated from CFS are, among others, depression, anxiety disorders, posttraumatic stress disorder, and school phobia and refusal (Bell et al., 2001; Garralda, 1999; Garralda & Rangel, 2002; Jordan et al., 1998; Richards, 2000; Sankey et al., 2006). A rule of thumb for these differential diagnoses is that with CFS, the primary complaint must be an unexplained, persistent, or relapsing chronic fatigue, whereas with all other disorders, fatigue (if present) is secondary to the main disease (Jordan et al., 1998).

Some comorbid mental disorders with CFS are known as well, such as anxiety, depression, emotional distress, and internalizing symptoms. In case of comorbidity, these syndromes are secondary to the severe functional impairment of CFS (Garralda, 1999; Garralda & Rangel, 2002; Jordan et al., 1998).

Comorbidity and differential diagnosis are more extensively researched in CFS than in burnout. The literature on burnout only mentions anxiety and depression as related syndromes. Among many other disorders, anxiety and depression are also mentioned to be related to CFS (Nijboer, 2006).

1.1.8 Treatment

When comparing treatment strategies of burnout and CFS, it becomes clear that both emphasise on multidisciplinary, integrative treatments, that pay attention to all contributing factors (Nijboer, 2006). In treatment of burnout, treatments that focus on relaxation are dissuaded (Iacovides et al., 2003), and cognitive and/or psychodynamic approaches are

recommended (Farber, 2000). Moreover, it is very important to pay attention to situational aspects (Angerer, 2003).

Treatment of CFS in childhood should take place in partnership with the child, the family, school, and other professionals (Garralda & Rangel, 2002). Attention should be paid to both biological, psychological, and social factors (Richards, 2000). Family therapy, cognitive behavioural therapies, and behavioural programs aiming at increasing activities in all areas of life are recommended. Prolonged rest is often ineffective. (Garralda, 1999; Garralda & Rangel, 2002; De Jong et al., 1997; Patel et al., 2003; Richards, 2000). Antidepressants can be prescribed for treatment of comorbid depressive symptoms, but not for treating CFS itself (Garralda, 1999; Richards, 2000).

Although the literature on both syndromes points out that rest as a treatment is ineffective, treatment must involve balancing of rest and activity (Farber, 2000; Jordan et al., 1998; Patel et al., 2003). Cognitive approaches for treatment of (secondary) depressive symptoms have been found to be effective in both burnout and CFS (Nijboer, 2006).

1.1.9 Conclusion

Although many differences between burnout and CFS were found in the literature (Nijboer, 2006), the previous part made clear that there is some important overlap as well. This overlap is seen in the (secondary) role of depression: patients of both disorders display depressive symptoms, presence of depression serves as a risk factor, and secondary depression can be treated in the same way. Another important conclusion can be that school can be seen as 'work' for children. This became clear from comparable results on causes, outcomes, and assessment with respect to work for adults with burnout and school for children with CFS (Nijboer, 2006). Situational aspects of work and school are comparable, as they refer to a situation in which demands are made on an individual, and in which an individual evaluates it's own capacities to meet these demands. Both in work and school, some individuals might not feel capable to meet the demands. The resulting imbalance could create a risk of becoming burnout.

If school is 'work' for children, the probability of burnout in children rises. As burnout is related to work in adults, it could be school-related in children and might therefore be called 'school burnout'. Children at risk for burnout are probably those who are busy, stressed, and tired due to environmental circumstances. Also children with other disorders, such as ADHD, ASS, and learning disabilities, could be at risk for burnout development: due to their difficulties, they might experience an imbalance between their resources and demands from their environment, so they might be at risk to become exhausted. In that sense, 'school

burnout' would be a better diagnosis than CFS, because exhaustion is central to burnout, whereas the diagnosis of CFS is of a more medical nature (Nijboer, 2006).

Burnout is a matter of imbalance and exhaustion. Stress and demands play a role in creating a state of imbalance. In order to know more about imbalance and exhaustion in children, stress and coping in children will be investigated in the next section.

1.2 Childhood stress

1.2.1 Definitions

Many definitions of stress were found in the literature, but overall three categories of definitions could be identified. Most authors present a relational definition of stress, in which the interaction between the individual and the environment plays a major role (De Anda et al., 1997; Elias, 1989; Helms, 1996). This is an important point of view with respect to school stress, since pressure to achieve in school arises from expectations experienced out of interactions with teachers, parents, and other students (Nijboer, 2007).

A physical definition of stress describes stress as the body's non-specific response or reaction to demands, which causes real and measurable changes in bodily functions (Bauwens & Hourcade, 1992; Helms, 1996). An emotional definition of stress describes stress as an emotional tension or anxiety arising from situations perceived as traumatic or threatening to one's security, self-esteem, safety, or way of life (Helms, 1996).

One should distinguish eustress and distress. Eustress is the good kind of stress because it is associated with positive feelings and healthy body states, and is evoked by positive emotions and/or events. Distress is the bad kind, associated with negative feelings and disturbed bodily states, and evoked by negative emotions and/or events (Lazarus, 1993). This section focuses on the negative types of stress resulting in problems, disturbance and/or dysfunction, and therefore handles about distress.

The concept of burnout is work-related, but as it was argued before, for children school can be equivalent to work. Moreover, school is such a large part of a child's life, that the school experience is a highly significant factor in the child's life-stress situation (Chandler, 1997). Therefore this section focuses at school stress. Some other stressors outside the school situation are also investigated, as the occurrence of other stressors can contribute to the weight of school stressors (Nijboer, 2007).

1.2.2 Symptoms

Children can express stress in many different ways (Scofield, 1998). Symptoms of stress can be divided into four main categories: physiological, behavioural, cognitive, and affective responses. Physiological responses to stress can be headaches, fast heart beat, hot and flushed face, light headedness, perspiring palms, and butterflies in stomach. Behavioural symptoms are seen when a child has trouble falling asleep, bites his/her nails, cries easily or feels like crying, and shows a loss of appetite. On the cognitive domain, stressed children are anxious about going to school, are worrying about a lot of things, and are having hard times keeping their worried thoughts out of their mind. Common affective responses are frustration, angriness, feeling out of control, and sadness (De Anda et al., 1997; Jones Sears & Milburn, 1990).

With respect to school stress, physiological, behavioural, and cognitive symptoms were mentioned in the literature (De Anda et al., 1997; Elias, 1989; Plante & Plante Goldfarb, 1993). Surprisingly, no reports of affective responses on school stress were found. This was explained by some overlap between behavioural and affective symptoms, with behavioural responses being a result of specific emotions (affective responses) (Nijboer, 2007).

It should be noted that stressful conditions do not produce dependable effects; for some persons the stress aroused by a given condition is great, while for others it is small; and under stress conditions, depending on the task, the performance for some is markedly impaired, for others it is improved, and for still others there is no demonstrable effect. This might be due to individual differences in motivational and cognitive variables, which intervene between the stressor and the reaction (Lazarus, 1993).

1.2.3 Stressors

Stress comes from pressures outside and within ourselves. When a discrepancy occurs between what we think we ought to be doing and what we are actually doing – we experience stress (Hale, 1998). So it is the child's perception of a particular event that makes the event a stressor (Helms, 1996).

The literature reports many childhood stressors, which can be divided into seven different categories on micro, meso, and macro levels. On the macro level, academic/school stressors and economic stressors can be defined. On the meso level, interpersonal stressors and media play an important role. Physical, psychological, and developmental stressors are defined on the micro level (Nijboer, 2007).

Academic stressors appeared to be the largest category (Nijboer, 2007). Almost all literature agree that school is a demanding experience: it calls upon the child to work, attend with some consistency, and to marshal his or her resources, in sustained concentrated effort

(Chandler, 1997). Academic stress is determined by students' perceptions of their academic performance or achievement (Jones Sears & Milburn, 1990). Especially test anxiety is mentioned very often with respect to academic stress. Indeed, tests are one of the most frequent school-based sources of stress (Bauwens & Hourcade, 1992). Fears of success or failure are also quite common. These fears can arise from different sources of stress, such as school work, discipline and classroom management procedures, extra-curricular activities, and public performances. In general, fear of failure is especially experienced by elementary students (Helms, 1996; Jones Sears & Milburn, 1990). Public performances are more experienced by girls, while boys suffer more from discipline as being stressful. Also younger students experience more stress from discipline procedures (Bauwens & Hourcade, 1992). School work is a large stressor, which can be even more stressful when the school culture is competitive (Jones Sears & Milburn, 1990; Romano, 1997). School work related sources of stress do not only refer to tests and exams, but also to different concerns, demands, and pressures (Bauwens & Hourcade, 1992; De Anda et al., 1997; Helms, 1996; Jones Sears & Milburn, 1990; Romano, 1997). With respect to extra-curricular activities, only competitive aspects are mentioned as being stressful (Jones Saers & Milburn, 1990; Karr & Johnson, 1991). However, it could be wondered whether the amount of activities plays a role as well (Nijboer, 2007). Finally, the beginning of a new school year can be stressful (Romano, 1997), especially when the child has to make the transition from primary to secondary education (Helms, 1996; Jones Sears & Milburn, 1990).

The second type of stressors on the macro level, economic stressors, is not often mentioned in the literature (Nijboer, 2007). However, economic hardship can function as a stressor (De Anda et al., 1997), reflected by problems with home and money, a physically unsafe environment, and parents' job related stress (De Anda et al., 1997; Elias, 1989; Moos, 2004).

On the meso level, interpersonal stressors play an important role. Interpersonal stressors originate from interactions with teachers, peers, friends, parents, and siblings (Nijboer, 2007). At school, children do not only experience academic stressors, but also social ones (Jones Sears & Milburn, 1990; Moos, 2004). A common social stressor at school is treatment of the students by the teacher (Bauwens & Hourcade, 1992; Brotman Band & Weisz, 1988). Elementary children suffer most from not being liked by their teacher or from failing to meet the expectations of their teacher. Older children (middle school) experience more stress when they have direct problems with their teacher (Helms, 1996). In school, peer interactions can be a source of stress as well, especially in conflict situations (Bauwens & Hourcade, 1992; Helms, 1996; Pincus & Friedman, 2004). Student friendships can be a stressor when interpersonal problems with friends exist (Moos, 2004; Romano, 1997), or when friends are separated (Brotman Band & Weisz, 1988; Pincus & Friedman, 2004).

Within the family, interpersonal problems with parents or siblings can be a source of stress (Brotman Band & Weisz, 1988; Jones Sears & Milburn, 1990; Moos, 2004; Pincus & Friedman, 2004; Romano, 1997). Different parental problems can be stressors for children, but most stressful are marital relationship problems between parents, with parental separation and divorce being extremely stressful events for children (Karr & Johnson, 1991; Moos, 2004; Plante & Plante Goldfarb, 1993; Romano, 1997). Due to higher divorce rates, more children grow up in extended families. Extended families can hold more interpersonal stressors than nuclear families (Moos, 2004). Finally, loss of a parent due to death is very stressful as well (Hale, 1998; Romano, 1997).

Also media can have a reasonable influence on the experience of stress. Being exposed to excessive television, especially violent programs, is a significant stressor (Elkind, 1981; Jones Sears & Milburn, 1990). However, the effect of media is not always easy to demonstrate (Nijboer, 2007).

On the micro level, stressors are of individual nature, as with physical, psychological, and developmental stressors. Physical stressors are chronic illness, physical or developmental disabilities, disorders, traumatic injury, and recurrent pain (De Anda et al., 1997; Moos, 2004). Physical unsafety is a physical stressor as well (Brotman Band & Weisz, 1988; De Anda et al., 1997; Romano, 1997).

Life experiences and the presence of physical stressors can create mental health problems such as emotional maladjustment (depression), behavioural adjustment problems, and psychological disturbance (De Anda et al., 1997; Hale, 1998; Plante & Plante Goldfarb, 1993). Mental health problems are serious psychological stressors. With respect to the school situation, a low academic self-concept can function as a psychological stressor (Helms, 1996).

Finally, some developmental changes contribute to the stressfulness of contexts in which (academic) learning occurs (Elias, 1989). Together with developing worries about self, expectations, social life, appearance, and about world events (De Anda et al., 1997), these developmental stressors can contribute to the experience of stress as well.

1.2.4 Coping

Children's ability to deal with stressors is significantly related to their psychological adjustment (Pincus & Friedman, 2004): self-efficacy, self-concept, and self-esteem contribute to effective coping, and effective coping enhances psychological adjustment (Elias, 1989). Having a repertoire of coping skills at a young age can be a 'buffer' or 'moderator' of the effects of negative life stress on the development of psychological maladjustment (Pincus & Friedman, 2004). In other words, adaptive coping skills contribute to a person's mental

health. To get clear how children cope with stress and which coping strategies are adaptive, two models of coping were studied (Nijboer, 2007).

The ways of coping model describes coping as a multidimensional process involving cognitive appraisals, a coping response, and a coping outcome. In the cognitive appraisal process, primary and secondary appraisals are made. A person immediately makes primary appraisals of the significance of a stressful event to his or her personal well-being. Secondary appraisals are an interpretation of the availability of coping resources and options. The coping response is defined as 'an intentional physical or mental action, initiated in response to a perceived stressor, which is directed toward external circumstances or an internal state'. Coping outcome is closely related to coping efficacy, as success or failure of a coping outcome is determined by whether an intended goal was attained (Pincus & Friedman, 2004).

The ways of coping model describes two fundamental types of coping: problem-focused coping refers to efforts to directly change or master the source of stress, and emotion-focused coping refers to efforts to manage or regulate the negative emotions associated with the stressful episode. (Pincus & Friedman, 2004).

The primary-secondary control model distinguishes three ways of controlling a stressful event, in which the method of coping differs: different responses entail primarily cognitive or behavioural efforts. The first way, primary control, is coping aimed at influencing objective conditions or events. Secondary control is defined as coping aimed at maximizing one's goodness of fit with conditions as they are. Third, relinquished control, is a failure to cope: no effort is made to enhance rewards or reduce punishments (Moos, 2004).

Based on the ways of coping model and the primary-secondary control model, ten different ways of how children cope with stress were identified. These ten strategies can be divided in categories of primary, secondary, and relinquished control (Brotman Band & Weisz, 1988; Nijboer, 2007). Primary control strategies are direct problem solving, problem-focused crying, problem-focused aggression, and problem-focused avoidance. With direct problem solving, effort is made to change stressful circumstances in an immediate way. Second, problem-focused crying, is crying to elicit instrumental assistance from others. Third, with problem-focused aggression, efforts are made to resolve problems through physical or verbal aggressive behaviour. Fourth, with problem-focused avoidance, experiencing a stressful situation is tried to be directly avoided (Brotman Band & Weisz, 1988; Romano, 1997).

Secondary control strategies are approaches not directly focused at the problem. First, seeking for social or spiritual support buffers distress through social or spiritual means. Second, emotion-focused crying, is crying to release pent-up feelings or to elicit comfort from others. Third, with emotion-focused, aggression pent-up feelings are tried to be released with physical or verbal aggression. Fourth, with cognitive avoidance efforts are made to avoid

thinking about a stressful situation through various cognitive strategies. Fifth, the strategy of pure cognition aims to reduce stress through fantasy or a shift in one's way of thinking by cognitive control, affective release, relaxation, or distancing (Brotman Band & Weisz, 1988; De Anda et al., 1997; Romano, 1997).

The third category consists of relinquished control strategies. Relinquished control means doing nothing: giving up or making no effort to deal with the stressful circumstances or to reduce their stressful impact (Brotman Band & Weisz, 1988).

All positive strategies (direct problem solving and seeking for social/spiritual support) were found to be adaptive. All negative strategies (problem- and emotion-focused crying, problem- and emotion-focused aggression, problem-focused avoidance, and doing nothing) were found to be maladaptive. With respect to cognitive avoidance and pure cognition, both adaptive and maladaptive strategies were found, depending on whether cognitions are positive or negative. Although many maladaptive strategies were identified, negative ways of coping were found to be lowest in frequency. In other words, children make much more use of positive (i.e. adaptive) strategies (De Anda et al., 1997). The use of multiple (positive) coping responses is most effective in promoting psychological adjustment (Pincus & Friedman, 2004).

1.2.5 Protective and risk factors

When dealing with stress, coping skills play an important role. However, not only ineffective coping makes children vulnerable to stress. Much more personal and social factors are associated with children's adaptation (Moos, 2004). The general stress and coping framework describes five systems, in which different protective and vulnerability factors can be identified (Moos, 2004).

First, the environmental system consists of relatively stable factors that play an important role in children's lives. Within the environmental system, family climate, ongoing life stressors, and social resources are very important. Support from parents, siblings, friends and teachers makes it easier for children to adapt to stress. Parents have a large influence on the stress experience of their children, by creating a good parent-child relationship, a healthy family milieu, and structure. Adaptive parenting styles aimed at reducing childhood stress are offering effective problem-solving techniques and strategies without taking over the entire problem-solving situation. On the other hand, offering too much support or adult direction are maladaptive parenting styles creating unreasonably high expectations or overprotection. Too much democracy in families is maladaptive as well: it forces the child to face an adult reality for which the child is not emotionally prepared. This can create (stressful) insecurity, which can be averted by enough family structure. Also a traditional nuclear family is thought to

provide more security (and thus less stress) than a nontraditional family (Jones Sears & Milburn, 1990; Moos, 2004).

Schools are part of the environmental system as well. A balanced school climate makes children less vulnerable to stress. Teachers should not only focus on academic achievement and should be non-punitive, non-authoritarian, and helpful (Chandler, 1997; Elias, 1989; Jones Sears & Milburn, 1990).

Second, the personal system includes children's biogenetic characteristics, and such personal resources as cognitive and intellectual abilities, social competence and self-confidence, and optimism and extroversion (Moos, 2004). It is often assumed that gender and age are important personal factors in experiencing stress (Karr & Johnson, 1991). However, there is no agreement upon gender and age differences, so gender and age might not yet be identified as a risk factor (Nijboer, 2007). Girls and boys do experience different stressors, but there is no difference in the amount of stress experienced (Pincus & Friedman, 2004; Romano, 1997). The same is for age: children of different ages experience different types of stress. While older children might face more stressors, their coping strategies have also been developed more widely. As long as the increase of faced stressors is equal to the increase of coping strategies, age itself is not necessarily a risk factor (Brotman Band & Weisz, 1988; Pincus & Friedman, 2004). However, it should be noted that especially early adolescence is a time of physical, intellectual, emotional, and social development, which involves many challenges (which can enhance stress) (Gerler, 1991).

Personality dispositions do make a difference in the experience of stress. Self-confidence, self-worth, self-esteem, sense of mastery, social problem-solving skills, and empathy all serve as protective factors (Jones Sears & Milburn, 1990; Pincus & Friedman, 2004). Also sense of coherence, the feeling that situations are comprehensible, manageable, and meaningful, protects people from aversive consequences of stressors. When a person has a strong sense of coherence, he/she experiences a stressor as less stressful (Jellesma, Meerum Terwogt, & Rieffe, 2006). So sense of coherence acts as a classic moderator of life stress (Torsheim, Aaroe, & Wold, 2001). On the other hand, being high on emotionality and suffering from test-anxiety are vulnerability factors (Jones Sears & Milburn, 1990; Moos, 2004). Also having a disability is identified as a risk factor. Due to their disability, these children face more frequent manifestations of stress. Unfortunately, they have often learned fewer strategies to deal with it. Having a disability can also harm other protective personality factors, such as self-esteem (Helms, 1996).

Third, while environmental and personal factors are more or less stable, transitory conditions are temporal and include such factors as new life events and participation in treatment and intervention programs (Moos, 2004). The experience of a life event is always influenced by protective and vulnerability factors from environmental and personal systems

(Jones Sears & Milburn, 1990). Positive life events serve as protective factors and generally occur in six resource domains: parents, siblings, extended family, school, friends, and boy-/girlfriend. Participation in an intervention program can also be a positive life event (Moos, 2004). Negative life events such as family dysfunction, substance abuse, teen pregnancy, teen suicide, sexual abuse, and school dropout are vulnerability factors that make children more vulnerable to a variety of both psychological and medical disorders (Gerler, 1991; Karr & Johnson, 1991). Negative life events usually occur in eight stressor domains: physical health, home and money, parents, siblings, extended family, school, friends, and boy-/girlfriend (Moos, 2004). Except for 'physical health' and 'home and money' resource and stressor domains are the same. This illustrates the importance of balancing between protective and vulnerability factors: the same domain can have a protective function on it's one hand, and have a risk function on it's other hand (Nijboer, 2007).

Fourth, cognitive appraisal and coping skills are shaped by all factors from environmental and personal systems and transitory conditions. This systems includes approach and avoidance, and cognitive and behavioural factors. Having a repertoire of adaptive coping skills serves as a protective factor, while a repertoire of maladaptive coping strategies is a risk factor in experiencing stress (see also §1.2.4) (Moos, 2004). Locus of control also plays an important role. Ascribing successes to external (good luck) factors and ascribing failures to internal factors such as lack of ability are ineffective attributions (Ghesquière & De Munter, 1998). An ineffective locus of control can contribute to the experience of stress (Jones Sears & Milburn, 1990).

Fifth, health and well-being is a kind of personal outcome category: it is determined by environmental and personal factors, transitory conditions and coping skills. Obviously, a good health, well-being and psychosocial functioning has a protective function against stress, while unhealthiness and poor psychosocial functioning create even more stress. This is a cyclic view of stress: health and well-being is both an outcome and a personal factor. From this point of view, an unhealthy state as a personal risk factor can create stress, which can make a person's health and well-being even worse (Moos, 2004). This cyclic view of stress has important consequences for treatment as well: even if the main stressor cannot be treated, stress can be relieved by an intervention aiming at the outcomes.

1.2.6 Conclusion

As was stated in §1.1.9, burnout is a matter of imbalance, and stress contributes to this state of imbalance. According to most definitions of stress, the interaction between the individual and the environment plays a major role in creating stress. Both in the individual and in the environment different stressors were identified (§1.2.3), of which academic and

interpersonal stressors appeared to be the largest categories. Although stressors on the micro level (physical, psychological, and developmental stressors) turned out to be smaller categories, individual stressors can be of significant influence as well. However, when studying distress in children, both individual and environmental factors, as well as the interactions between a child and it's environment, should be taken into account (Nijboer, 2007).

As stress is one of the main causes of burnout, parallels can be drawn with symptoms of stress (§1.2.2) and symptoms of burnout (§1.1.2). Some comparable symptoms are headaches, sleeping problems, anxiety symptoms, and mood disturbance (with e.g. worries, sadness, or even depression).

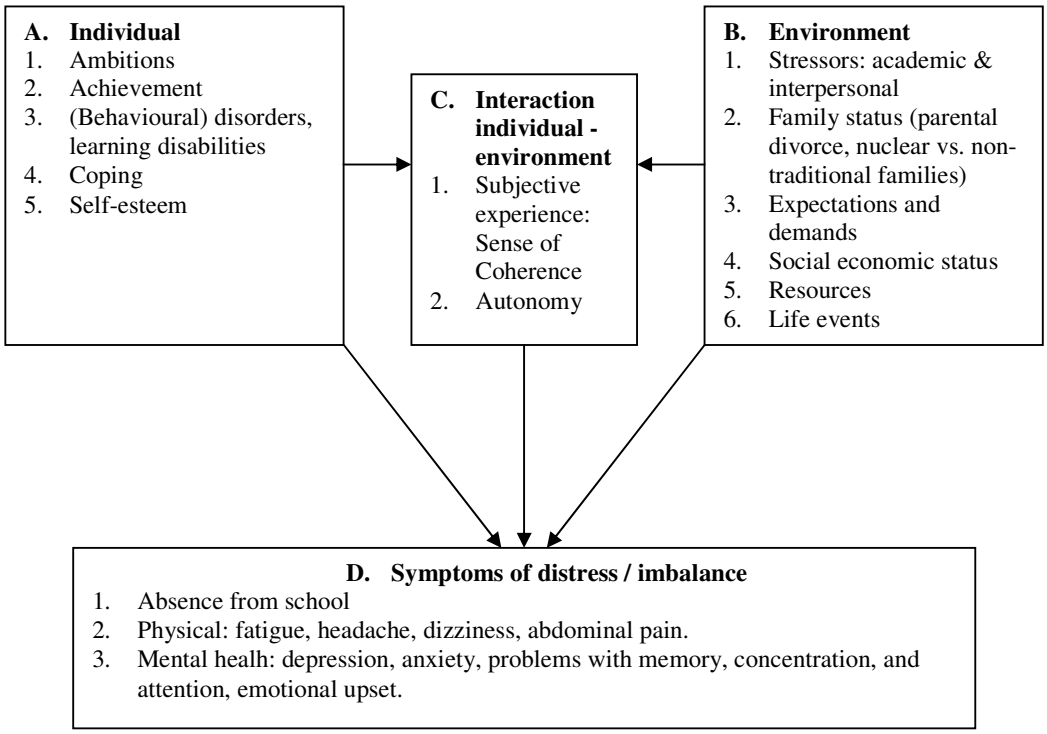
When dealing with stress, adaptive coping skills are very important. Ten different ways of how children cope with stress were identified, of which positive strategies were found to be adaptive (§1.2.4). Adaptive coping strategies reduce the amount of experienced stress, but maladaptive coping strategies do not reduce stress. So with maladaptive coping, imbalance in life maintains. This can lead to burnout, as burnout is a matter of imbalance in life.

Not only coping skills, but also other personal and social factors can make children vulnerable to stress. Different protective and vulnerability factors were identified within five systems (§1.2.5). Again, an imbalance in protective and vulnerability factors contributes to the experience of stress. When a child, together with such an imbalance, has to face many stressors and does not have the adaptive coping skills to deal with, the probability of becoming burnout rises.

1.3 Model

Theoretically, different arguments were given for the development of a concept of burnout in children. However, because this concept does not exist (yet), a study on burnout in children turned out to be unattainable. Before developing a concept of burnout in children, more should be known about distress and imbalance in children's lives.

Based on the literature studies described in sections 1.1 and 1.2, the following model has been constructed:



In both the literature studies on stress and on burnout/CFS, factors within the individual and within the environment were identified. On the individual level, five factors were included (box A). First, ambitions are taken into account, because of the central role of high ambitions creating a state of exhaustion (i.e. imbalance) in both burnout and CFS. Second, achievement is taken into account, because low achievement was identified as a risk factor. Third, having a (behavioural) disorder or (learning) disability was identified as a risk factor as well. Moreover, these stressors can contribute largely to experienced imbalance in life. Fourth, coping plays an important role in the experience of stress and imbalance in life. Especially those with ineffective coping skills are at risk to experience distress. On the other hand, effective coping skills can serve as a protective factor. Fifth, high self-esteem was identified as a protective factor, but low self-esteem can function as a psychological stressor and is therefore a risk factor for the experience of distress and imbalance.

On the environmental level, five factors were included as well (box B). First, academic and interpersonal stressors were included in the model, since these were identified as the largest categories of stressors for children. Second, family status was included, because non-traditional families are thought to hold more (interpersonal) stressors and less structure than nuclear families. Third, high expectations or demands are known to play a role in causation and maintenance of burnout. For children, school work related sources of stress can originate from demands set by their environment. Fourth, SES was included, because for children high SES can be a risk factor for development of CFS. Moreover, high educational

level, which is an indicator of SES, is know as a risk factor in burnout, especially when it goes together with high ambitions, low achievement, ineffective coping, and poor self-esteem. Fifth, resources function as a protective factor. With stress, especially social resources are important. The absence of resources such as skill use and worksite support is an environmental risk factor that could create a state of imbalance. Sixth, life events are included on the environmental level, because life events generally occur on different domains in an individual's environment (e.g. parents, school, peers) (Moos, 2004).

As was stated before, stress comes from pressures outside and within ourselves. In other words, the interaction between individual and environmental factors should be taken into account when studying distress and burnout (box C). An individual's subjective experience of situations determines the possible risk of distress: when experiencing an imbalance between resources and demands, a person is at risk to become exhausted. Because it is the subjective experience that counts, sense of coherence was included. To what extent an individual feels autonomous to shape his/her own life could play a role as well. Together with competence and relatedness, autonomy is one of the psychological needs in growth and development. Adolescents who experience autonomy seem to be better adjusted. When the need for autonomy is not met, human distress is theorised to follow. Autonomy is included in the 'interactional' box C, because autonomy was found to be a mediator of the relation of parental support to children's well-being. In other words, support from parents (family climate and resources; box B) prompts autonomy, which in turn supports well-being (physical and mental symptoms; box D) (Niemiec et al., 2006).

Box D reflects symptoms of distress and imbalance. First, absence from school, which can be a consequence of distress/imbalance, is included as a more or less objective measure. Second and third, physical and mental symptoms that were reported for both burnout, CFS, and distress are included in the model.

1.4 Research questions

The question as submitted at the science shop of the University Medical Centre in Groningen was whether children can get burnout. As was shown by literature studies (Nijboer, 2006; Nijboer, 2007), theoretically, there might be children at risk for (school)burnout. Therefore, the main goal of this study is to identify risk factors for distress and imbalance in children.

The following research questions will be studied:

1. What is the prevalence of symptoms of distress and imbalance in children?

2. What is the effect of individual factors on symptoms of distress and imbalance?
3. What is the effect of environmental factors on symptoms of distress and imbalance?
4. What is the effect of interactional factors on symptoms of distress and imbalance?
5. What is the joint effect of individual factors, environmental factors, and interactional factors on symptoms of distress and imbalance?

1.5 Outline

Before presenting results on the research questions, the method of the study (procedures, participants, instruments, data-analyses) will be described in chapter 2. Chapter 3 will present the results on the first research question, about the prevalence of symptoms of distress and imbalance in children. Univariate results on the effect of individual and environmental factors (research questions 2 and 3) will be presented in chapters 4 and 5. Chapter 6 will present univariate results on the effect of interactional factors (research question 4). Multivariate results on the joint effect of individual factors, environmental factors, and interactional factors (research question 5) will be presented in chapter 7. Finally, chapter 8 will present conclusions and some topics for discussion.

2. Method

This chapter presents the method of the study. First, in section 2.1, the participants and procedure will be described. Second, all instruments used will be described in section 2.2. Third, section 2.3 describes the statistical analyses.

2.1 Participants and procedure

Participants in this study were elementary school pupils from grades 5 and 6 (grades 7 and 8 in The Netherlands), aged 10 to 13 years old. An information letter (appendix 1) was sent to 28 elementary schools from two large communities in the north of The Netherlands. 14 schools from 12 villages were willing to participate in the study. Within those 14 schools, 19 classes participated. The main reason for not participating was full schedules in schools. All participating schools were regular primary education.

Since all participants were under age, parents had to give permission for their child joining the study. If parents did not agree, they could sign a letter (appendix 2), which was distributed by the teachers. In the end, 406 children participated in the study.

Data were collected in spring 2008. All classes were visited by the researcher. The children completed a questionnaire on physical and psychological well-being, moods, self-perception, home, school, peers, sense of coherence, and thought processes. At the same time, the teachers answered for each pupil some general questions and a questionnaire on hyperactivity/inattention, emotional symptoms, and problems with peers. Both children and teachers could complete the questionnaires within one hour.

2.2 Instruments

Based on two literature studies (Nijboer 2006; Nijboer 2007), the questionnaires were designed using different instruments. The questionnaire for pupils (appendix 3) consisted of some general questions, the instruments Kidscreen-52, SOC-K, NPDK, and a few questions from the instrument PMT-K. The teachers used a list to answer some general questions for each pupil (appendix 4), and for each pupil they completed a short questionnaire based on the instrument SDQ (appendix 5). All instruments will be described in the following paragraphs.

2.2.1 General questions

The general questions concern important information not included in the standardised instruments. Items 1 – 8 from the children's questionnaire (appendix 3) ask for name[2], sex, date of birth, age, grade, residence, family structure, and presence of (chronic) illness or disability. Item 88 asks the children whether they had to do activities they do not like. Finally, participants were asked to mark their general quality of life on a scale from 0 (very bad) to 10 (very good).

The general questions about the children that had to be completed by the teachers (appendix 4) ask for presence of (chronic) illness, disorder or disability, achievement level, absenteeism, parental divorce, educational level of the parents, and parents' demands on the child. The first item was often used by the teachers to report other relevant details as well.

2.2.2 Kidscreen-52

The Kidscreen instruments assess children's and adolescents' subjective health and well-being (health-related quality of life: HRQoL). They were developed as self-report measures applicable for healthy and chronically ill children and adolescents aged from eight to eighteen years. The aim is to identify children at risk in terms of their subjective health and to suggest appropriate early interventions by including the instrument in health services research and health reporting (The Kidscreen Group, 2004).

The Kidscreen-52 instrument measures ten HRQoL dimensions: physical well-being, psychological well-being, moods and emotions, self-perception, autonomy, parent relation and home life, financial resources, social support and peers, school environment, and social acceptance (bullying). Definitions of the dimensions are presented in appendix 6.

The Kidscreen-52 instrument consists of 52 items, which are scored on a 5-point Likert scale ranging from *never/not at all* to *always*. The time frame refers to the last week. Most of the items are formulated positively, with a higher score reflecting a higher HRQoL, and a lower score reflecting a lower HRQoL. Items 9, 20-26, 29-31, and 62-64 (appendix 3) are formulated negatively and had to be recoded (The Kidscreen Group Europe, 2006). Interpretations of high and low scores of each dimension can be read in appendix 6.

Table 2.1 presents for each scale the following characteristics: item numbers in the questionnaire (appendix 3); number of items; score range; Cronbach's alpha's reported in the manual (The Kidscreen Group Europe, 2006); and Cronbach's alpha's found in this study. For all dimensions, reliability is satisfactorily ($\alpha > .70$).

[2] Names were only used to match the children's and teachers' questionnaires. After matching, names were deleted.

Table 2.1: characteristics of Kidscreen-52

Scale	*Items questionnaire*	*Number of items*	*Score range*	*α manual*	*α study*
Physical well-being	9-13	5	5/25	.80	.74
Psychological well-being	14-19	6	6/30	.89	.81
Moods and emotions	20-26	7	7/35	.86	.87
Self-perception	27-31	5	5/25	.79	.73
Autonomy	32-36	5	5/25	.84	.77
Parent relation and home life	37-42	6	6/30	.89	.84
Financial resources	43-45	3	3/15	.89	.86
Social support and peers	45-51	6	6/30	.85	.82
School environment	56-61	6	6/30	.87	.82
Social acceptance (bullying)	62-64	3	3/15	.77	.80

Raw scores for each scale are obtained by summing up the item scores of the respective scale. The Kidscreen manual's instruction is followed to obtain reference scores. First, scale raw scores are transformed into Z-scores. Next, T-values are obtained by multiplying Z-scores by 10, and adding up 50. This results in a mean reference score of 50, with standard deviation 10. A range around the mean is hold plus or minus half a standard deviation, so the resulting range would be 45 to 55 (50 +/- 0.5*10). Scores smaller than 45 represent a lower quality of life, and scores larger than 55 represent a higher quality of life. In the range from mean minus half a standard deviation to mean plus half a standard deviation, 38% of persons of a normal distributed sample are included. Below this threshold, 31% of the persons with the lowest values can be found, above this threshold the 31% highest values are located (The Kidscreen Group Europe, 2006).

2.2.3 SOC-K

Sense of coherence was measured by the Dutch Sense of Coherence Questionnaire for Children (SOC-K) (items 65-77, appendix 3). Sense of coherence refers to the feeling that situations are comprehensible, manageable, and meaningful. It is thought that sense of coherence protects people from aversive consequences of stressors. The questionnaire was shown to have good psychometric properties. The validity of the questionnaire was supported by a negative relationship with somatic complaints, social anxiety, and depressiveness (Jellesma et al., 2006).

The questionnaire contains of thirteen items that tap three components of comprehensibility, manageability, and meaningfulness (Torsheim et al., 2001). However, research on the Dutch version showed that a one-factor model has the best goodness of fit. Internal reliability is good as well, with Cronbach's alpha reported .76 (Jellesma et al., 2006). In this study Cronbach's alpha was found .87.

The items are scored on a scale from 4 (never) to 0 (always). Items 68 and 71 are formulated positively and are scored on a Likert scale from 0 (very bad) to 4 (very good). The total SOC-K score is obtained by summing up the item scores, with a higher score (max. = 52) reflecting a higher sense of coherence and a lower score (min. = 0) reflecting a lower sense of coherence.

2.2.4 NPDK

With the use of the questionnaire 'Non-Productieve Denkprocessen voor Kinderen' (NPDK; Non-Productive Thought Processes for Children), it is possible to measure the circular thought processes worrying and rumination in children. Since worrying and rumination are negative coping strategies (Jellesma, Meerum Terwogt, Reijntjes, Rieffe, & Stegge, 2005), the NPDK is used in this study to measure negative coping.

The validity of the questionnaire is strongly supported. A positive relation is found between the Non-Productive Thoughts Questionnaire for Children and cognitive coping strategies that are based on circular thought processes. The questionnaire is also related to negative affect and a low sense of coherence. Finally, there is also a relation with emotional problems as reported by parents (Jellesma et al., 2005). The internal reliability of the questionnaire is reported to be good (Cronbach's alpha .84) (Jellesma et al., 2005). This study found Cronbach's alpha .84 as well.

The questionnaire contains ten items that were determined on the basis of established questionnaires for rumination and worrying in adults. The items were scored on a 3-point Likert scale ranging from *not true* to *certainly true*, with a higher score reflecting more non-productive thoughts and a lower score reflecting less non-productive thoughts. Item 81 (appendix 3) is formulated positively and had to be recoded (Jellesma et al., 2005).

2.2.5 PMT-K

The 'Prestatie Motivatie Test voor Kinderen' (PMT-K) is a personality questionnaire that assesses achievement motivation, negative fear of failure, positive fear of failure, and social desirability (Toetsgids). In this study, the scale achievement motivation is used to measure level of ambition. Achievement motivation is defined as the tendency to achieve, in which achievement is conceived as to excel both for others and for oneself (Hermans, 1983).

The scale achievement motivation consists of 34 items (Hermans, 1969). Because the questionnaire would have been too large with all 34 items, only those items were used that load at least .50 on the scale achievement motivation. In this way, 4 items were included in the questionnaire (items 52-55, appendix 3). Items 53-55 are scored on a scale from 0 to 2,

and item 52 is scored 0 or 1. Item 54 is formulated negatively and had to be recoded. A higher score reflects a higher achievement motivation, and a lower score reflects a lower achievement motivation.

Validity and reliability of the PMT-K are reported to be good by COTAN (Committee On Test Affairs Netherlands) (Toetsgids). On the items used in the questionnaire, Cronbach's alpha was calculated to be .66, which is sufficient for research on group-level (Toetsgids). However, Cronbach's alpha might be underestimated due to the use of only a few items and due to a variation in scoring on these items.

2.2.6 SDQ

The SDQ (Strengths and Difficulties Questionnaire) is a brief behavioural screening instrument about 3-16 year olds. It exists of several versions to meet the needs of researchers, clinicians and educationalists (Youth in Mind, 2001a). In this study, the Dutch informant-rated version for teachers and parents of 4-16 year olds was used (Youth in Mind, 2006a).

The SDQ asks about 25 psychological attributes, some positive and some negative. These 25 items are divided between five scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour (Youth in Mind, 2001a). In this study, the scales emotional problems, hyperactivity/inattention, and peer relationship problems were used (appendix 5), since literature studies identified these domains as either potential symptoms of distress/imbalance in children (hyperactivity/inattention, emotional symptoms) or potential stressors (peer relationship problems) (Nijboer, 2006; Nijboer, 2007).

Each scale consists of five items, scored by the teachers as *not true* (0), *somewhat true* (1), or *certainly true* (2). Items 6, 8, 12, and 15 were formulated positively and had to be recoded. For each scale the score can range from 0 to 10 if all five items are completed. Scores can both be used as continuous variables, and can as well be classified as normal, borderline, and abnormal (Youth in Mind, 2006b), with low scores classified as normal and high scores classified as abnormal. Table 2.2 presents for each scale the following characteristics: item numbers in the questionnaire (appendix 5); normal, borderline, and abnormal score classifications (Youth in Mind, 2006b); and Cronbach's alphas found in this study. For all scales, reliability is satisfactorily ($\alpha > .70$).

Table 2.2: characteristics of SDQ

Scale	*Items questionnaire*	*Normal score*	*Borderline score*	*Abnormal score*	*α study*
Hyperactivity/inattention	1, 5, 9, 12, 15	0 - 5	6	7 - 10	.86
Emotional symptoms	2, 4, 7, 10, 14	0 - 4	5	6 - 10	.77
Peer relationship problems	3, 6, 8, 11, 13	0 - 3	4	5 - 10	.76

British norm data on the SDQ scales are available (Youth in Mind, 2001b), and will be presented in table 2.3.

Table 2.3: SDQ norm data

Scale		*% Normal*	*% Borderline*	*% Abnormal*
Hyperactivity/inattention	Total	82.5	4.8	12.7
	Boys	74.4	6.5	19.1
	Girls	90.5	3.1	6.4
Emotional symptoms	Total	91.4	3.8	4.8
	Boys	91.5	3.6	4.9
	Girls	91.4	4.0	4.6
Peer relationship problems	Total	87.9	5.1	7.0
	Boys	85.6	5.8	8.6
	Girls	90.1	4.4	5.5

2.3 Data-analysis

A few pupils were not allowed to participate in the study. However, this was less than one per school, so the problem of missing data was negligible.

Reliability of the instruments was estimated by calculating Cronbach's alpha. To check which dependent variables load together, a factor analysis was done (principal component analysis with Varimax rotation). Eigenvalues had to be at least 1 when identifying the number of components, and factor loadings had to be at least 0.40 when determining which factors load together.

After calculating descriptive statistics on all outcome variables, univariate analyses were done. Correlations between independent and dependent variables were analysed by calculating Pearson's r. If a variable is not normally distributed, Spearman's rho was calculated to investigate correlations. A variable was considered relevant if correlations were at least 0.30. To analyse differences between groups on continuous variables, t-tests and F-tests were done. Group comparisons on categorical variables were done using chi-square. For all analyses, significance levels should be at least 0.05.

Stepwise multiple regression analyses were done with the independent variables that appeared to be relevant after univariate analyses. Also variables that just did not fully reach the criterion of relevancy were included in the multivariate analyses. To meet the assumption of regression analysis that predictors must be linearly independent, independent variables that correlated strongly could be excluded. However, a factor analysis showed that the correlated

variables loaded together on one component. Instead of excluding variables (and thus throwing information away), it was chosen to include the obtained factor in the multivariate analyses.

To control for differences in variability of different scales, all data were transformed into Z-scores. Interaction terms were obtained by multiplying Z-scores of independent variables. Independent variables were entered stepwise into the models. The preferred model should explain a relatively large proportion of the variance of the dependent variable, with a minimum of independent variables. To analyse the proportion of explained variance, R^2 was calculated. As a rule of thumb for choosing a model, adding a variable should increase R^2 with a substantial proportion. Again, significance levels should be at least 0.05. To check for multicollinearity, the Variance Inflation Factor (VIF) is calculated. If VIF is 10 or higher, the problem of multicollinearity may be present (Williams, 2008).

All analyses were done using the computer program SPSS (Statistical Package for the Social Sciences), version 16.0.

3. Prevalence of symptoms of distress and imbalance in children

This chapter presents the results on the first research question: what is the prevalence of symptoms of distress and imbalance in children? First, in section 3.1, some general characteristics of the participants will be described. Second, section 3.2 presents the results on the prevalence of different distress/imbalance symptoms. Third, boys and girls will be compared on all distress/imbalance symptoms in section 3.3.

3.1 Characteristics of participants

As can be seen in table 3.1, slightly more girls (53.9%) participated in the study. 57.4% of the participants are in grade 8, and 42.6% in grade 7. Most children are eleven (49.8%) or twelve years (30.8%) old, corresponding to the average age of children in grades 7 and 8 of Dutch primary education.

Table 3.1: Characteristics of participants (N = 406)

Characteristics		*N*	*%*
Sex	Male	187	46.1
	Female	219	53.9
Grade	7	173	42.6
	8	233	57.4
Age	10 years	69	17.0
	11 years	202	49.8
	12 years	125	30.8
	13 years	10	2.5

3.2 Prevalence of symptoms of distress and imbalance

An individual's subjective experience of life plays a role in the development of distress and imbalance. Therefore, subjective health and well-being (HRQoL) is taken into account. Participants were asked to mark their general quality of life (item 89) on a scale from 0 (very bad) to 10 (very good). Grades ranged from 2 up to 10, with a mean grade of 8.53 (standard deviation 1.46).

The research model presents three categories of symptoms of distress and imbalance. The prevalence of school-absence will be presented in section 3.2.1. Section 3.2.2 presents the prevalence of physical symptoms, and section 3.2.3 the prevalence of mental health symptoms.

3.2.1 Absence from school

Teachers were asked to rate absenteeism of each pupil, using three categories: never/less than average, average, and often/more than average. Table 3.2 shows the results on this item. According to the teachers, the majority of children is (almost) never absent (66%). Frequent absenteeism can be a symptom of imbalance. A small group of children might display this symptom of absenteeism, as 4.2% is (very) often absent.

Table 3.2: Absence from school according to the teachers

Absence	*N*	*%*
Never/less than average	268	66.0
Average	117	28.8
Often/more than average	17	4.2

3.2.2 Physical symptoms

Physical symptoms of distress/imbalance were measured by item 2 from the SDQ and the Physical Well-being scale from the Kidscreen questionnaire.

Physical Well-being

This dimension explores the level of the child's physical activity, energy and fitness. Low scores are interpreted as feeling physically exhausted, unwell, unfit, and having low energy, and high scores are interpreted as feeling physically fit, active, healthy, and energetic (The Kidscreen Group Europe, 2006).

As can be seen in table 3.3, 34.5% of children scores around the mean on the scale physical well-being (reference score 45 – 55). 38.4% of the children feels physically very fit, active, healthy and energetic (reference score > 55). 24.9% has low reference scores (< 45) on this dimension, and might therefore feel physically exhausted, unwell, unfit, and having low energy. In other words, almost a quarter of all participants reports a low HRQoL on the Physical Well-being dimension.

Table 3.3: Kidscreen scale Physical Well-being

Reference score	*N*	*%*
< 45	101	24.9
45 – 55	140	34.5
> 55	156	38.4
Missing	9	2.2

Physical Complaints

Teachers were asked whether a pupil often complains about headaches, stomach-aches or sickness (appendix 5, item 2). Table 3.4 shows that, according to the teachers, over 80% does not display these complaints and 15.8% sometimes complains about headaches, stomach-aches or sickness. A small group of children might display some physical symptoms of distress/imbalance, as 3.0% often complains about headaches, stomach-aches, or sickness.

Table 3.4: SDQ item 2

Often complains about headaches, stomach-aches or sickness	*N*	*%*
Not true	328	80.8
Somewhat true	64	15.8
Certainly true	12	3.0
Missing	2	0.5

3.2.3 Mental health symptoms

Mental health symptoms were measured by the Kidscreen dimensions Psychological Well-being and Moods and Emotions, and by the SDQ scales Emotional Symptoms and Hyperactivity/Inattention.

Psychological Well-being

The Kidscreen dimension Psychological Well-being examines the psychological well-being of the child including positive emotions and satisfaction with life. Low scores are interpreted as having no pleasure and dissatisfaction in life, and high scores are interpreted as being happy and satisfied with life (The Kidscreen Group Europe, 2006).

Table 3.5 shows that 38.7% of participants scores around the mean of the scale psychological well-being (reference score 45 – 55), which corresponds with a normal distribution (The Kidscreen Group Europe, 2006). The majority of the children (41.4%) is happy and satisfied with life (reference score > 55). A relatively small group might have no pleasure and dissatisfaction in life: 19.0% reports a low HRQoL (reference score < 45) on the dimension Psychological Well-being.

Table 3.5: Kidscreen scale Psychological Well-being

Reference score	*N*	*%*
< 45	77	19.0
45 – 55	157	38.7
> 55	168	41.4
Missing	4	1.0

Moods and Emotions

The Kidscreen dimension Moods and Emotions covers how much the child experiences depressive moods and emotions and stressful feelings. Low scores are interpreted as feeling depressed and in a bad mood, and high scores are interpreted as feeling in a good mood (The Kidscreen Group Europe, 2006).

Table 3.6 presents the dimension Moods and Emotions. Corresponding with a normal distribution (The Kidscreen Group Europe, 2006), about 38% scores within the mean range 45 – 55. 33.5% of the children feels in a good mood (reference score > 55). 26.1% reports a low HRQoL (reference score < 45) on this dimension, which means that well over a quarter of all participants feels depressed and in a bad mood at least once in a while.

Table 3.6: Kidscreen scale Moods and Emotions

Reference score	*N*	*%*
< 45	106	26.1
45 – 55	156	38.4
> 55	136	33.5
Missing	8	2.0

Emotional Symptoms

The SDQ scale Emotional Symptoms contains the following items: Often complains of headaches, stomach-ache or sickness; Many worries, often seems worried; Often unhappy, down-hearted or tearful; Nervous or clingy in new situations, easily loses confidence; and Many fears, easily scared. For each pupil, teachers have marked the items 'not true', 'somewhat true', or 'certainly true' (Goodman, 1997).

As can be seen in table 3.8, 90.1% of the children scored within the normal range. 4.2% got a borderline score, and 4.9% scored within the abnormal range, which corresponds with the British norm data (table 2.3). Those children with abnormal scores on Emotional Symptoms, might display some emotional symptoms of distress/imbalance.

Table 3.8: SDQ scale Emotional Symptoms

Scale score	*N*	*%*
Normal	366	90.1
Borderline	17	4.2
Abnormal	20	4.9
Missing	3	0.7

Hyperactivity/Inattention

The SDQ scale Hyperactivity/Inattention contains the following items: Restless, overactive, cannot stay still for long; Constantly fidgeting or squirming; Easily distracted, concentration wanders; Thinks things out before acting (recoded); and Sees tasks through to the end, good attention span (recoded). For each pupil, teachers have marked the items 'not true', 'somewhat true', or 'certainly true' (Goodman, 1997).

Table 3.7 shows that 84.5% of pupils got a normal score on the scale Hyperactivity/Inattention. Only 3.4% got a borderline score, but 11.1% scored within the abnormal range of the scale Hyperactivity/Inattention. This is a large percentage, since the prevalence of ADHD is 3-5% in elementary school children (Gunning, 2003). However, the percentages do correspond with the British norm data (table 2.3)

Attention problems were also identified as a possible symptom of distress/imbalance. Therefore, some of the children with abnormal scores on Hyperactivity/Inattention might display attention problems as a consequence of distress and imbalance.

Table 3.7: SDQ scale Hyperactivity/Inattention

Scale score	*N*	*%*
Normal	343	84.5
Borderline	14	3.4
Abnormal	45	11.1
Missing	4	1.0

3.3 Gender

This section compares boys and girls on all symptoms of distress/imbalance. No differences between boys and girls were found on Absenteeism (χ^2 = .46, n.s.), Physical Well-being (t = .60, n.s.), Physical Complaints (χ^2 = .11, n.s.), Psychological Well-being (t = -1.14, n.s.), and Moods and Emotions (t = .28, n.s.). Significant differences were found with respect to Emotional Symptoms and Hyperactivity/Inattention.

Table 3.8 shows the percentages of boys and girls that were scored by the teachers within the normal, borderline, or abnormal range on the Emotional Symptoms scale (SDQ). The majority of both sexes was scored within the normal range. However, a somewhat larger percentage of boys was scored within the borderline range, but a little larger percentage of girls was scored within the abnormal range (χ^2 = 9.54, p < .01).

Table 3.8: emotional symptoms in boys and girls.

	% Normal	*% Borderline*	*% Abnormal*
Boys (N=186)	88.2	7.5	4.3
Girls (N=217)	93.1	1.4	5.5

Table 3.9 shows the percentages of boys and girls that were scored by the teachers within the normal, borderline, or abnormal range on the Hyperactivity/Inattention scale (SDQ). Although the majority of both groups was scored within the normal range, the percentage of boys in the normal range is considerably smaller. Moreover, a much larger percentage of boys was scored within the abnormal range ($\chi^2 = 32.00$, $p < .001$). This corresponds with the British norm data (table 2.3) as well. So boys display much more symptoms of hyperactivity and inattention than girls.

Table 3.9: hyperactivity/inattention in boys and girls.

	% Normal	*% Borderline*	*% Abnormal*
Boys (N=185)	74.6	5.4	20.0
Girls (N=217)	94.5	1.8	3.7

4. Effects of individual factors

This chapter presents the results on the second research question: what is the effect of individual factors on symptoms of distress and imbalance? Before analysing the effects of individual factors, the results of a factor analysis will be presented in section 4.1. Sections 4.2 up to 4.6 will present the univariate results on individual factors ambitions, achievement, disorders and disabilities, coping, and self-esteem.

4.1 Factor analysis

A factor analysis was done on all outcome variables. As the scree plot shows, three components should be identified, because eigenvalues are larger than 1 for components 1, 2, and 3.

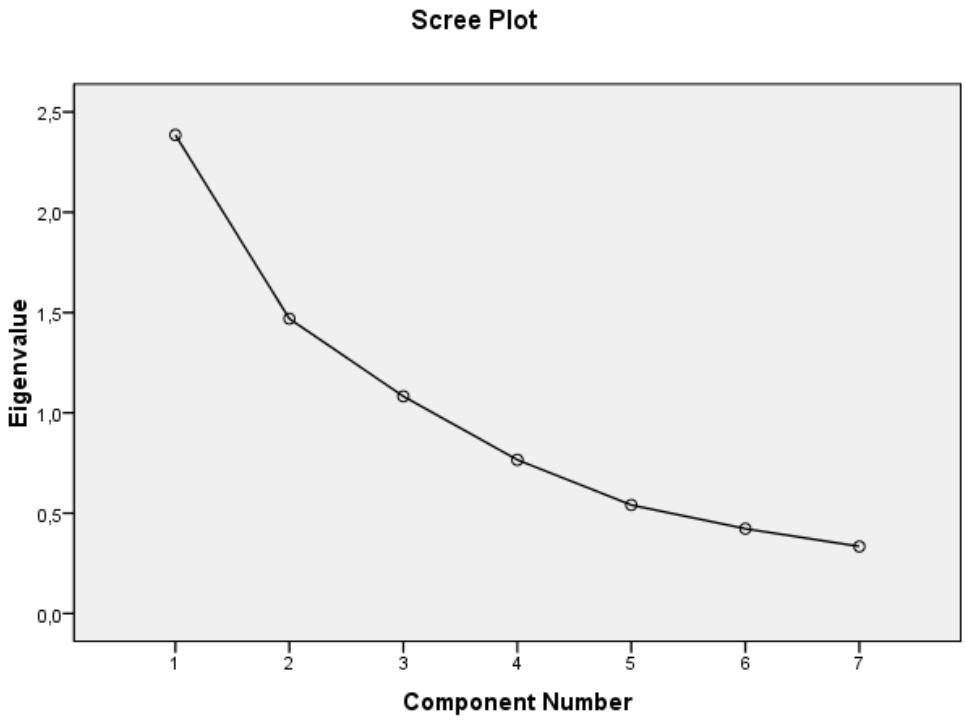


Table 4.1 shows the rotated component matrix. The Kidscreen dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions load together on the first

component, explaining 34.1% of the variance. Since the Kidscreen instrument assesses HRQoL, the first factor is called *Quality of Life*.

The SDQ scale Emotional Symptoms and the SDQ item Physical Complaints load together on the second component, explaining 20.9% of the variance. Since Physical Complaints was extracted from the SDQ scale Emotional Symptoms, Physical Complaints should be understood as an emotional symptom as well. Together, Emotional Symptoms and Physical Complaints reflect psychosomatic trouble. Therefore, this factor is called *Psychosomatic Symptoms*.

The SDQ scale Hyperactivity/Inattention and Absence from School load together on the third component, explaining 15.5% of the variance. Altogether, the 3 factors explain 70.5% of the variance. Although the variables Hyperactivity/Inattention and Absence from School load on the same component, they are incomparable regarding their content. Therefore, *Absenteeism* and *Hyperactivity/Inattention* will be treated separately.

Table 4.1: Rotated component matrix

Outcome variable	*Component*		
	1	2	3
Absence from School	.01	.49	**-.68**
Physical Well-being	**.78**	-.08	.16
Physical Complaints	-.12	**.83**	-.06
Psychological Well-being	**.86**	-.06	-.04
Moods and Emotions	**.84**	-.14	-.11
Emotional Symptoms	-.14	**.82**	.16
Hyperactivity/Inattention	.02	.37	**.75**

The factor analysis resulted in a somewhat different composition than originally proposed in the research model, which distinguished absenteeism, physical, and mental health symptoms. From now on, the new structure obtained by the factor analysis (quality of life, emotional symptoms, absenteeism, and hyperactivity/inattention) will be used when analysing the data.

4.2 Ambitions

This section investigates the effect of ambitions on symptoms of distress and imbalance. A few items from the scale Achievement Motivation from the instrument PMT-K were used to measure the level of ambition. High scores are interpreted as a high tendency to achieve, and low scores as a low tendency to achieve.

Table 4.2 shows that Achievement Motivation correlates significantly with Physical Well-being, Psychological Well-being, Moods and Emotions (Kidscreen), and Hyperactivity/Inattention (SDQ). Although correlations are weak ($r < .30$, $p < .01$), children with a higher score on Achievement Motivation reported a better Quality of Life. With respect to Hyperactivity/Inattention a stronger correlation ($r = -.35$, $p < .001$) was found: children with a higher tendency to achieve were reported by the teachers as less hyperactive.

Table 4.2: relationship between achievement motivation and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.18***
	Psychological Well-being	.14**
	Moods and Emotions	.19***
Psychosomatic Symptoms	Emotional Symptoms	-.09
	Physical Complaints	-.02
Absenteeism	Absence from school	-.01
Hyperactivity/Inattention	Hyperactivity/Inattention	-.35***

* $p < .05$, ** $p < .01$, *** $p < .001$ (Pearson's r)

4.3 Achievement level

This section investigates the effect of achievement on symptoms of distress and imbalance. Teachers were asked to rate the pupils' general achievement levels: below average, average, or above average.

As can be seen in table 4.3, Achievement Level correlates significantly, but weak ($r < .30$, $p < .05$), with Emotional Symptoms (SDQ), Physical Complaints (SDQ), and Absenteeism. So teachers reported slightly more emotional symptoms, physical complaints, and absenteeism on the low achieving children. Achievement Level and Hyperactivity/Inattention (SDQ) were found to be correlated stronger ($r = -.41$, $p < .001$). This means that teachers reported less hyperactivity/inattention on the children that achieve better in school.

Table 4.3: relationship between achievement level and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.02
	Psychological Well-being	-.09
	Moods and Emotions	.04
Psychosomatic Symptoms	Emotional Symptoms	-.24***
	Physical Complaints	-.15**
Absenteeism	Absence from school	-.10*
Hyperactivity/Inattention	Hyperactivity/Inattention	-.41***

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

4.4 Disorders and disabilities

This section compares children with and without disabilities on symptoms of distress and imbalance. Both the children and teachers were asked whether a participant has any (chronic) illness, disorder or disability. Within all children with difficulties (i.e. problems, illnesses, disorders, disabilities), 24.8% has a learning disability/problem (e.g. dyslexia), 28.3% has behavioural, psychological, or psychiatric disorders (e.g. ADHD, PDD-NOS), 35.9% has physical or medical problems (e.g. asthma), 8.3% has problems related to family and home life (to be treated in the next chapter), and 2.8% has other problems (e.g. stutter). However, it should be noted that these data were based on teachers' en children's judgments, and not on official diagnoses.

On all outcome variables comparisons will be made between children with and without disabilities, and between children with learning disabilities, behavioural disorders, and physical problems. Because 'other problems' was only a small group, these were not included in the analyses. Some children were reported to have two or three problems (N = 35). These children will also be compared with the children having one problem (N = 110).

4.4.1 Quality of Life

Table 4.4 shows that both groups differ significantly on the Kidscreen dimensions Physical Well-being (t = -2.76, p < .01) and Psychological Well-being (t = -1.97, p < .05). Physical and psychological well-being are a little lower in children with disabilities, but the mean of both groups lies within the range around the mean (45 – 55). Nevertheless, looking at the percentages in both groups with a low quality of life (Kidscreen reference score < 45), a

considerable larger percentage of the children with disabilities reported a low quality of life on the three dimensions. So quality of life seems to be lower in children with a disorder or disability.

Table 4.4: quality of life in children with and without disorders/disabilities.

Dependent variable	*No disorder/ disability (N=259)*		*Disorder/ disability (N=145)*	
	M (sd)	% < 45	M (sd)	% < 45
Physical Well-being	51.1 (9.2)	21.6	48.0 (11.1)**	30.6
Psychological Well-being	50.7 (9.6)	15.8	48.7 (10.7)*	24.5
Moods and Emotions	50.7 (10.1)	22.8	48.8 (9.8)	32.0

* p < .05, ** p < .01, *** p < .001 (t-test)

No significant differences in quality of life were found between children with learning disabilities, behavioural disorders, or physical problems (Physical Well-being: F = .35, n.s.; Psychological Well-being: F = .87, n.s.; Moods and Emotions: F = 1.03, n.s.). No significant differences were found as well between children with one problem and children with more than one problem (Physical Well-being: t = -.03, n.s.; Psychological Well-being: t = 1.04, n.s.; Moods and Emotions: F = 1.05, n.s.).

4.4.2 Psychosomatic Symptoms

Emotional Symptoms

Table 4.5 shows the percentages of children with and without disabilities that score within the normal, borderline, or abnormal range on the Emotional Symptoms scale (SDQ). The majority of children in both groups scores within the normal range. However, a considerably larger percentage of children with a disorder or disability scores within the borderline or abnormal range (χ^2 = 24.37, p < .001). So both groups differ on the Emotional Symptoms scale: children with a disorder or disability display more emotional symptoms than children without those difficulties.

Comparing children with learning disabilities, behavioural disorders, and physical problems, a considerable larger percentage of children with learning disabilities were scored within the abnormal range on the Emotional Symptoms scale. Larger percentages of children with behavioural disorders can be found in the borderline and abnormal ranges as well (χ^2 = 10.40, p < .05). So children with learning disabilities and behavioural disorders seem to display more emotional symptoms.

Table 4.5: emotional symptoms in children with and without disorders/disabilities.

	% Normal	*% Borderline*	*% Abnormal*
With/without disorder/disability			
No disorder/disability (N=259)	96.1	1.6	2.3
Disorder/disability (N=145)	81.4	9.0	9.7
Kind of disorder/disability			
Learning disability (N=36)	83.3	5.6	11.1
Behavioural disorder (N=41)	65.9	17.1	17.1
Physical problems (N=55)	90.9	3.6	5.5

No significant differences in emotional symptoms were found between children with one problem and children with more than one problem ($\chi^2 = 1.89$, n.s.).

Physical Complaints

Table 4.6 shows for both groups the teachers' ratings on Physical Complaints (SDQ). The statement 'often complains about headaches, stomach-aches or sickness' was rated by the teachers for each pupil as *not true*, *somewhat true*, or *certainly true*.

Again, the majority of both groups does not display physical complaints, but more children with difficulties complain about headaches, stomach-aches, or sickness ($\chi^2 = 10.95$, $p < .01$). So both groups differ in physical complaints: children with a disorder or disability display physical complaints more often than children without those difficulties.

Table 4.6: physical complaints in children with and without disorders/disabilities.

	% Not true	*% Somewhat true*	*% Certainly true*
No disorder/disability (N=259)	84.9	13.9	1.2
Disorder/disability (N=145)	74.5	19.3	6.2

No significant differences in physical complaints were found between children with learning disabilities, behavioural disorders, or physical problems ($\chi^2 = 2.15$, n.s.). Also between children with one problem and children with more than one problem no differences were found ($\chi^2 = .38$, n.s.).

4.4.3 Absenteeism

Table 4.7 shows absence from school of both groups, as rated by the teachers. Larger percentages of children with a disorder or disability are found in the average and often/more than average categories ($\chi^2 = 8.85$, $p < .05$), so the children with difficulties are more often absent than those without disorders/disabilities.

Table 4.7: absenteeism of children with and without disorders/disabilities.

	% Never/less than average	*% Average*	*% Often/more than average*
No disorder/disability (N=259)	71.5	25.8	2.7
Disorder/disability (N=145)	58.2	34.9	6.8

No differences in absenteeism were found between children with learning disabilities, behavioural disorders, or physical problems ($\chi^2 = 2.81$, n.s.), as well as between children with one problems and children with more than one problem ($\chi^2 = 1.66$, n.s.).

4.4.4 Hyperactivity/Inattention

Table 4.8 shows the percentages of children with and without disabilities that score within the normal, borderline, or abnormal range on the Hyperactivity/inattention scale (SDQ). Within the normal range, a large group appeared to be scored 0 or 1, i.e. displaying (almost) no symptoms of hyperactivity/inattention. Therefore, 'low' normal scores (no symptoms) and 'high' normal scores (few symptoms) are presented separately in table 4.7. However, it should be noted that also 'high' normal scores, do belong to the normal range.

As can be seen in table 4.8, the majority of children without difficulties were rated by the teachers as having no symptoms of hyperactivity/inattention, whereas the largest percentage of children with a disorder or disability can be found in the 'high' normal category. Moreover, slightly more children with difficulties were scored by their teachers in the abnormal range ($\chi^2 = 10.32$, $p < .05$). So there is a trend that children with a disorder or disability display some more symptoms of hyperactivity and inattention.

Comparing children with learning disabilities, behavioural disorders, physical problems, or other problems, a considerable larger percentage of children with behavioural disorders were scored within the abnormal range on the Hyperactivity/Inattention scale ($\chi^2 = 17.34$, $p < .01$). However, this is not surprising, as 54.5% of the children with a behavioural disorder were reported to have AD(H)D.

Table 4.8: hyperactivity/inattention in children with and without disorders/disabilities.

	% Normal (no symptoms)	*% Normal (few symptoms)*	*% Borderline*	*% Abnormal*
With/without disorder/disability				
No disorder/disability (N=259)	54.7	32.9	3.1	9.3
Disorder/disability (N=145)	38.2	43.1	4.2	14.6
Kind of disorder/disability				
Learning disability (N=36)	27.8	47.2	11.1	13.9
Behavioural disorder (N=41)	25.0	42.5	5.0	27.5
Physical problems (N=55)	52.7	38.2	0.0	9.1

No significant differences in hyperactivity/inattention were found between children with one problem and children with more than one problem ($\chi^2 = 2.99$, n.s.).

4.5 Coping

This section determines the effects of coping on symptoms of distress and imbalance. Coping was measured with the instrument NPDK. Higher scores on this questionnaire reflect more non-productive thoughts (i.e. less effective coping), and lower scores reflect less non-productive thoughts (i.e. more effective coping).

Weak significant correlations ($r < .30$, $p < .01$)) were found between coping and Physical Well-being (Kidscreen), Emotional Symptoms (SDQ), and Physical Complaints (SDQ). Coping correlates significantly with Psychological Well-being (Kidscreen) ($r = -.34$, $p < .001$) and Moods en Emotions (Kidscreen) ($r = -.53$, $p < .001$): children with more non-productive thoughts reported a lower Quality of Life on the dimensions Psychological Well-being and Moods and Emotions. In other words, children with less effective coping strategies feel unhappier and have less pleasure in life.

Table 4.9: relationship between coping and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	-.25***
	Psychological Well-being	-.34***
	Moods and Emotions	-.53***
Psychosomatic Symptoms	Emotional Symptoms	.15**
	Physical Complaints	.14**
Absenteeism	Absence from school	-.03
Hyperactivity/Inattention	Hyperactivity/Inattention	.09

* $p < .05$, ** $p < .01$, *** $p < .001$ (Pearson's r)

4.6 Self-esteem

This section explores the effect of self-esteem on symptoms of distress and imbalance. Self-esteem was measured with the dimension Self-perception from the Kidscreen questionnaire. Children with low scores have a low self-esteem, and high scores reflect a good self-esteem (The Kidscreen Group Europe, 2006).

Self-esteem correlates significantly, but weak ($r < .30$, $p < .05$), with Physical Complaints (SDQ). Stronger significant correlations were found with the Kidscreen dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children with a better self-esteem reported a better quality of life on these domains. So children with a good self-esteem feel physically more healthy, happier, and in a better mood.

Table 4.10: relationship between self-esteem and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.42***
	Psychological Well-being	.47***
	Moods and Emotions	.51***
Psychosomatic Symptoms	Emotional Symptoms	-.04
	Physical Complaints	-.11*
Absenteeism	Absence from school	.02
Hyperactivity/Inattention	Hyperactivity/Inattention	-.01

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

5. Effects of environmental factors

This chapter presents the results on the third research question: what is the effect of environmental factors on symptoms of distress and imbalance? Sections 5.1 up to 5.6 present the univariate results on environmental factors stressors, family status, expectations and demands, social economic status, resources, and life events.

5.1 Stressors

This section explores the effects of different environmental stressors on symptoms of distress and imbalance. Within the environment of the children, academic and interpersonal stressors were identified. Academic stressors arise from school, and interpersonal stressors from family or peers. The effects of academic stressors will be described in section 5.1.1, and personal stressors will be discussed in section 5.1.2.

5.1.1 Academic stressors

This section investigates the effect of academic stressors on symptoms of distress and imbalance. Whether a child experiences academic stressors was determined with the Kidscreen dimension School Environment. This dimension explores the child's satisfaction with his/her ability and performance at school, general feelings about school such as whether school is an enjoyable place to be, and the child's view of the relationship with his/her teachers. A high score on this dimension means the child feels happy at school, and low scores reflect negative feelings about school (The Kidscreen Group Europe, 2006).

As can be seen in table 5.1, academic stressors correlate significantly, but weak ($r < .30$, $p < .05$), with Emotional Symptoms (SDQ) and Physical Complaints (SDQ). Stronger correlations were found between academic stressors and the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children who feel happy at school reported a better quality of life on these domains. So those who do not experience academic stressors, feel physically more healthy, happier, and in a better mood.

Table 5.1: relationship between academic stressors and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.41***
	Psychological Well-being	.47***
	Moods and Emotions	.45***
Psychosomatic Symptoms	Emotional Symptoms	-.11*
	Physical Complaints	-.11*
Absenteeism	Absence from school	-.01
Hyperactivity/Inattention	Hyperactivity/Inattention	-.25***

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

5.1.2 Interpersonal stressors

This section investigates the effect of interpersonal stressors on symptoms of distress and imbalance. Interpersonal stressors can arise from peers or family and will be discussed separately.

Peers

Whether a child experiences interpersonal stressors from peers was determined with the Kidscreen dimension Social Acceptance/Bullying. This dimension covers the aspect of feeling rejected by peers in school. It explores both the feeling of being rejected by others as well as the feeling of anxiety towards peers. A high score means a child does not feel bullied and feels respected by peers, and low scores reflect feelings of being bullied and rejected (The Kidscreen Group Europe, 2006).

As can be seen in table 5.2, interpersonal peer stressors correlate significantly, but weak ($r < .30$, $p < .05$), with Emotional Symptoms (SDQ) and Physical Complaints (SDQ). Stronger correlations were found between interpersonal peer stressors and the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children who do not feel bullied and feel respected by peers reported a better quality of life on these domains. So those who do not experience interpersonal peer stressors, feel more healthy, happier, and in a better mood.

Table 5.2: relationship between social acceptance and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.31***
	Psychological Well-being	.39***
	Moods and Emotions	.55***
Psychosomatic Symptoms	Emotional Symptoms	-.23***
	Physical Complaints	-.11*
Absenteeism	Absence from school	-.07
Hyperactivity/Inattention	Hyperactivity/Inattention	-.10

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

Interpersonal peer stressors were also determined with the SDQ scale Peer Problems. This scale, completed by the teachers, contains the following items: Rather solitary, tends to play alone; Has at least one good friend; Generally liked by other children; Picked on or bullied by other children; and Gets on better with adults than with other children. For each pupil, teachers have marked the items 'not true', 'somewhat true', or 'certainly true' (Goodman, 1997).

Problems with peers are not only stressful, but can also be an indication of mental problems (Goedhart, Treffers, & Widenfelt, 2003). This is confirmed by table 5.3, which shows significant correlations with all variables on Quality of Life, Psychosomatic Symptoms, and Hyperactivity/Inattention. Although correlations are weak ($r < .30$, $p < .001$), children with a higher score on peer problems reported a lower quality of life on the dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions (Kidscreen). Peer problems also correlate significantly, but weak ($r < .30$, $p < .001$), with Physical Complaints and Hyperactivity/Inattention (SDQ). A stronger significant correlation was found between Peer Problems and Emotional Symptoms (SDQ) ($r > .30$, $p < .001$): according to the teachers, participants who have problems with peers display more emotional symptoms.

Table 5.3: relationship between peer problems and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	-.25***
	Psychological Well-being	-.23***
	Moods and Emotions	-.29***
Psychosomatic Symptoms	Emotional Symptoms	.44***
	Physical Complaints	.20***
Absenteeism	Absence from school	.05
Hyperactivity/Inattention	Hyperactivity/Inattention	.20***

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

Family

Whether a child experiences interpersonal stressors within the family was determined with the Kidscreen dimension Parent Relation and Home Life. This dimension examines the child's relationship with his/her parents and the atmosphere in the child's home. A high score on this dimension means that the child feels secure at home and perceives his/her parents as available and fair, whereas a low score means that the child feels alone and perceives his/her parents as unavailable and unfair (The Kidscreen Group Europe, 2006).

As can be seen in table 5.4, interpersonal family stressors correlate significantly, but weak ($r < .30$, $p < .05$), with Physical Complaints (SDQ). Stronger correlations were found between interpersonal family stressors and the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children who feel secure at home reported a better quality of life on these domains. So those who do not experience interpersonal family stressors, feel more healthy, happier, and in a better mood.

Table 5.4: relationship between interpersonal family stressors and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.46***
	Psychological Well-being	.63***
	Moods and Emotions	.63***
Psychosomatic Symptoms	Emotional Symptoms	-.08
	Physical Complaints	-.12*
Absenteeism	Absence from school	.02
Hyperactivity/Inattention	Hyperactivity/Inattention	-.08

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

Besides the child's relationship with his/her parents and the atmosphere at home, problems related to family and home life can be stressful as well. Examples of these problems given by the teachers are being adopted, living in a foster family, personal problems of the parents (e.g. depression, marital problems), and death of one of the parents. Children who experience these kind of problems were compared to children experiencing problems on the individual level (learning disability, behavioural disorder, medical problems). No statistical significant differences were found between children experiencing problems at home and children experiencing problems on the individual level (Physical Well-being: $t = -.98$, n.s.; Psychological Well-being: $t = 1.18$, n.s.; Moods and Emotions: -.33, n.s.; Emotional Symptoms: $\chi^2 = 2.41$, n.s.; Physical Complaints: $\chi^2 = 2.40$, n.s.; Absenteeism: $\chi^2 = 4.88$, n.s.; Hyperactivity/Inattention: $\chi^2 = 3.84$, n.s.).

5.2 Family status

This section explores the effect of family status and parental divorce on symptoms of distress and imbalance. In section 5.2.1 the effect of parental divorce will be analysed, and section 5.2.2 handles about family status.

5.2.1 Parental divorce

The teachers were asked whether a child's parents are divorced or not. Children of divorced and not-divorced parents did not differ on the Quality of Life dimensions (Physical Well-being: t = .62, n.s.; Psychological Well-being: t = 1.58, n.s.; Moods and Emotions: t = 1.97, n.s.). Also no differences between both groups were found on Emotional Symptoms (χ^2 = 4.61, n.s.), Absence from school (χ^2 = 1.82, n.s.), and Hyperactivity/Inattention (χ^2 = 2.44, n.s.).

Table 5.5 shows for both groups the teachers' ratings on Physical Complaints (SDQ). The statement 'often complains about headaches, stomach-aches or sickness' was rated by the teachers for each pupil as *not true*, *somewhat true*, or *certainly true*. Looking at table 5.5, it becomes clear that the majority of both groups does not display physical complaints, but the statement is rated more often as somewhat true for children who's parents are divorced (χ^2 = 9.36, $p < .01$). So both groups differ in physical complaints: children who's parents are divorced display a little more physical complaints.

Table 5.5: physical complaints in children of divorced and not-divorced parents.

	% Not true	*% Somewhat true*	*% Certainly true*
Parents not divorced (N=344)	83.7	13.7	2.6
Parents divorced (N=57)	66.7	28.1	5.3

5.2.2 Family status

The children answered a question about which family members they live with. 84.0% of the children lives in a nuclear family, 10.3% in a single parent family, 3.2% in an extended family, and 2.0% has divorced parents who do co-parenting. Only 1 child lives in a foster family (0.2%), so this case was excluded in the analyses. Single parent families, extended families, and co-parenting families were small groups and therefore taken together. This resulted in an analysis comparing children in nuclear families versus children in other families.

Quality of Life

Table 5.6 shows that both groups differ significantly on the Kidscreen dimensions Psychological Well-being ($t = -2.21$, $p < .05$), and Moods and Emotions ($t = -2.22$, $p < .05$). Psychological Well-being and Moods and Emotions are a little lower in children from non-nuclear families, but the mean of both groups lies within the range around the mean (45 – 55). Nevertheless, looking at the percentages in both groups with a low quality of life (Kidscreen reference score < 45), a considerably larger percentage of the children in non-nuclear families reported a low quality of life on the dimension Psychological Well-being. On the other dimension, differences are less large. So Psychological Well-being seems to be lower in children of non-nuclear families.

Table 5.6: quality of life in children from nuclear and other families.

Dependent variable	*Nuclear family (N=337)*		*Other families (N=63)*	
	M (sd)	% < 45	M (sd)	% < 45
Physical Well-being	50.0 (10.1)	24.6	49.5 (9.9)	27.0
Psychological Well-being	50.6 (9.4)	16.1	46.9 (12.4)*	33.3
Moods and Emotions	50.5 (9.7)	25.2	47.3 (11.3)*	31.7

* p < .05, ** p < .01, *** p < .001 (t-test)

Emotional Symptoms

Table 5.7 shows the percentages of children in nuclear and other families that score within the normal, borderline, or abnormal range on the Emotional Symptoms scale (SDQ). The majority of children in both groups scores within the normal range. However, a considerably larger percentage of children in non-nuclear families scores within the borderline range, but a somewhat larger percentage of children in nuclear families scores within the abnormal range ($\chi^2 = 10.62$, $p < .01$).

Table 5.7: emotional symptoms in children from nuclear and other families.

	% Normal	*% Borderline*	*% Abnormal*
Nuclear family (N=337)	91.5	2.9	5.6
Other families (N=63)	86.9	11.5	1.6

Physical Complaints

Table 5.8 shows for both groups the teachers' ratings on Physical Complaints (SDQ). The statement 'often complains about headaches, stomach-aches or sickness' was rated by the teachers for each pupil as *not true*, *somewhat true*, or *certainly true*.

Again, the majority of both groups does not display physical complaints, but more children in non-nuclear families complain about headaches, stomach-aches, or sickness (χ^2 =

14.54, $p < .001$). So both groups differ in physical complaints: children in non-nuclear families display physical complaints more often than children in nuclear families.

Table 5.8: physical complaints in children from nuclear and other families.

	% Not true	*% Somewhat true*	*% Certainly true*
Nuclear family (N=337)	84.5	13.2	2.3
Other families (N=63)	63.9	29.5	6.6

Absenteeism and Hyperactivity/Inattention

No differences between children from nuclear families and other families were found on Absenteeism ($\chi^2 = 4.74$, n.s.) and Hyperactivity/Inattention ($\chi^2 = 3.00$, n.s.).

5.3 Expectations and demands

This section analyses the effect of parents' expectations and demands on symptoms of distress and imbalance. Teachers were asked whether parents' demands on the child are too low, appropriate, or too high. According to the teachers, 88.9% of the parents places appropriate demands on their child, 1.7% has too low expectations, and 8.4% sets their demand too high. Since this variable is obviously not normally distributed, Spearman's rho was used to explore the relationship between parental demands and symptoms of distress and imbalance.

A significant, but weak, correlation was found between parents' demands and the Kidscreen dimensions Physical Well-being ($\rho = -.12$, $p < .05$). So children whose parents have high expectation and demands, reported a little lower Physical Well-being. On all other outcome variables, not significant and weak correlations were found (Psychological Well-being: $\rho = -.09$, n.s.; Moods and Emotions: $\rho = -.06$, n.s.; Emotional Symptoms: $\rho = .04$, n.s.; Physical Complaints: $\rho = -.05$, n.s.; Absenteeism: $\rho = -.08$, n.s.; Hyperactivity/Inattention: $\rho = .03$, n.s.).

5.4 SES

This section investigates the effect of Social Economic Status on symptoms of distress and imbalance. SES was determined by the educational level of the parents, which was indicated by the teachers as low, middle, or high.

Table 5.9 shows significant correlations with the Kidscreen dimension Moods and Emotions ($r = .14$, $p < .01$), and the SDQ scales/item Emotional Symptoms ($r = -.13$, $p < .05$), Physical Complaints ($r = -.13$, $p < .01$), and Hyperactivity/Inattention ($r = -.20$, $p < .001$). However, correlations are weak ($r < .30$).

Table 5.9: relationship between SES and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.05
	Psychological Well-being	.00
	Moods and Emotions	.14**
Psychosomatic Symptoms	Emotional Symptoms	-.13*
	Physical Complaints	-.13**
Absenteeism	Absence from school	-.03
Hyperactivity/Inattention	Hyperactivity/Inattention	-.20***

* $p < .05$, ** $p < .01$, *** $p < .001$ (Pearson's r)

5.5 Resources

This section explores the effect of available resources on symptoms of distress and imbalance. Two different types of resources will be analysed: financial resources in section 5.5.1, and social support in section 5.5.2.

5.5.1 Financial resources

A child's satisfaction with his/her financial resources was determined with the Kidscreen dimension Financial Resources. This dimension assesses the perceived quality of the financial resources of the child, with high scores reflecting satisfaction with financial resources, and low scores reflecting the feeling that finances are restricting life style (The Kidscreen Group Europe, 2006).

As can be seen in table 5.10, financial resources correlate significantly, but weak ($r < .30$, $p < .05$), with Physical Well-being (Kidscreen), Emotional Symptoms (SDQ), and Physical Complaints (SDQ). Stronger correlations were found between Financial Resources and the Quality of Life dimensions Psychological Well-being and Moods and Emotions ($r > .30$, $p < .001$): children who are satisfied with their financial resources reported a better quality of life on these domains. So those who are satisfied with their financial resources, feel happier and in a better mood.

Table 5.10: relationship between financial resources and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.27***
	Psychological Well-being	.34***
	Moods and Emotions	.41***
Psychosomatic Symptoms	Emotional Symptoms	-.13**
	Physical Complaints	-.10*
Absenteeism	Absence from school	-.07
Hyperactivity/Inattention	Hyperactivity/Inattention	-.10

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

5.5.2 Social support

Social support was determined with the Kidscreen dimension Social Support and Peers, which examines the nature of the child's relationships with other children. This dimension explores the quality of the interaction between the child and peers as well as their perceived support. A high score on this dimension means that the child is able to rely on peers, and feels accepted, supported and included in the peer group. Low scores reflect feelings of exclusion, not being accepted and supported by peers, and no ability to rely on peers (The Kidscreen Group Europe, 2006).

Table 5.11 shows significant, but weak correlations ($r < .30$, $p < .05$), with Emotional Symptoms (SDQ) and Physical Complaints (SDQ). Stronger correlations were found between Social Support and the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children who feel accepted and supported by their peers reported a better quality of life on these domains. So those who can rely on social support, feel more healthy, happier, and in a better mood.

Table 5.11: relationship between social support and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.36***
	Psychological Well-being	.52***
	Moods and Emotions	.41***
Psychosomatic Symptoms	Emotional Symptoms	-.18***
	Physical Complaints	-.16**
Absenteeism	Absence from school	-.04
Hyperactivity/Inattention	Hyperactivity/Inattention	-.08

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

5.6 Life events

The experience of a life event can be a risk factor, because stress is apparent during negative life events (Helms, 1996). A more or less 'common' life event for children is parental divorce (N=57), which was analysed in section 5.2.1. Other life events that could be identified in the data are: death of a parent (N=7), being adopted (N=3), being placed out of home (N=2), and a history of bullying (N=2). Because these groups are small, all children that experienced a negative life event are taken together. The analysis compares these children with children who did not experience negative life events.

Quality of Life

Table 5.12 shows that both groups differ significantly on the Kidscreen dimensions Psychological Well-being ($t = 2.27$, $p < .05$), and Moods and Emotions ($t = 2.14$, $p < .05$). Psychological Well-being and Moods and Emotions are a little lower in children who experienced a negative life event, but the mean of both groups lies within the range around the mean (45 – 55). Nevertheless, looking at the percentages in both groups with a low quality of life (Kidscreen reference score < 45), a considerably larger percentage of the children who experienced a negative life event reported a low quality of life on the dimension Psychological Well-being. On the dimension Moods and Emotions differences are less large. So Psychological Well-being seems to be lower in children who experienced a negative life event.

Table 5.12: quality of life in children who did and did not experience negative life events.

Dependent variable	*No experience of negative life events (N=336)*		*Experience of negative life events (N=67)*	
	M (sd)	% < 45	M (sd)	% < 45
Physical Well-being	50.2 (9.9)	24.1	49.1 (10.6)	28.4
Psychological Well-being	50.6 (9.2)	15.5	46.8 (12.8)*	37.3
Moods and Emotions	50.6 (9.5)	24.7	47.2 (12.1)*	32.8

* p < .05, ** p < .01, *** p < .001 (t-test)

Emotional Symptoms

Table 5.13 shows for both groups (children who did and who did not experience a negative life event) the percentages of children that were scored within the normal, borderline, or abnormal range on the Emotional Symptoms scale (SDQ). The majority of children in both groups scores within the normal range. However, a considerably larger percentage of children who did experience a negative life event, were scored within the borderline range, but a somewhat larger percentage of children that did not experience a negative life event were scored within the abnormal range ($\chi^2 = 9.79$, $p < .05$).

Table 5.13: emotional symptoms in children who did and did not experience negative life events.

	% Normal	*% Borderline*	*% Abnormal*
No experience of negative life events (N=336)	91.3	3.0	5.7
Experience of negative life events (N=67)	87.9	10.5	1.5

Physical Complaints

Table 5.14 shows for both groups the teachers' ratings on Physical Complaints (SDQ). The statement 'often complains about headaches, stomach-aches or sickness' was rated by the teachers for each pupil as *not true*, *somewhat true*, or *certainly true*.

Again, the majority of both groups does not display physical complaints, but more children who experienced a negative life event complain about headaches, stomach-aches, or sickness ($\chi^2 = 13.71$, $p < .01$). So both groups differ in physical complaints: children who experienced a negative life event, display physical complaints more often than children who did not experience negative life events.

Table 5.14: physical complaints in children who did and did not experience negative life events.

	% Not true	*% Somewhat true*	*% Certainly true*
No experience of negative life events (N=336)	84.2	13.4	2.4
Experience of negative life events (N=67)	65.2	28.8	6.1

Absenteeism and Hyperactivity/Inattention

No differences between children who did and who did not experience negative life events were found on Absenteeism ($\chi^2 = 3.61$, n.s.) and Hyperactivity/Inattention ($\chi^2 = 3.31$, n.s.).

6. Effects of interactional factors

This chapter presents the results on the fourth research question: what is the effect of interactional factors on symptoms of distress and imbalance? Because an individual's subjective experience of situations contributes to distress and imbalance in life, sense of coherence is analysed in this chapter (section 6.1), as well as feelings of autonomy (section 6.2). Next, section 6.3 provides a summary of important factors from chapters 4, 5, and 6.

6.1 Sense of Coherence

This section investigates the effect of Sense of Coherence on symptoms of distress and imbalance. Sense of Coherence is the feeling that situations are comprehensible, manageable, and meaningful, and it protects people from aversive consequences of stressors. When a person has a strong sense of coherence, he/she experiences a stressor as less stressful (Jellesma, Meerum Terwogt &, Rieffe, 2006).

Sense of Coherence was measured by the Dutch Sense of Coherence Questionnaire for Children (SOC-K). This questionnaire contains of three components: comprehensibility, manageability, and meaningfulness (Torsheim et al., 2001). A higher score reflects a higher sense of coherence and a lower score reflects a lower sense of coherence.

Table 6.1 shows significant, but weak correlations ($r < .30$, $p < .05$) of Sense of Coherence with Emotional Symptoms (SDQ), Physical Complaints (SDQ), and Hyperactivity/Inattention (SDQ). Stronger correlations were found between Sense of Coherence and the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children with a higher sense of coherence reported a better quality of life on these domains. So when a child feels that situations are comprehensible, manageable, and meaningful, he/she feels more healthy, happier and in a better mood.

Table 6.1: relationship between sense of coherence and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.46***
	Psychological Well-being	.55***
	Moods and Emotions	.69***
Psychosomatic Symptoms	Emotional Symptoms	-.23***
	Physical Complaints	-.21***
Absenteeism	Absence from school	-.02
Hyperactivity/Inattention	Hyperactivity/Inattention	-.11*

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

6.2 Autonomy

This section investigates the effect of autonomy on symptoms of distress and imbalance. Whether a child feels autonomous to shape his/her own life was determined with the Kidscreen dimension Autonomy. This dimension looks at the opportunity given to a child to create his/her social and leisure time. It examines the child's level of autonomy, referring to the child's freedom of choice, self-sufficiency, and independence. A high score on this dimension means the child feels free to decide, independent, and autonomous, and a low score means the child feels restricted, oppressed, and dependent (The Kidscreen Group Europe, 2006).

As can be seen in table 6.2, autonomy correlates significantly, but weak ($r < .30$, $p < .05$) with Physical Complaints (SDQ). Stronger correlations were found between autonomy and the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions ($r > .30$, $p < .001$): children who feel free to decide and independent reported a better quality of life on these domains. So those who feel more autonomous, feel physically more healthy, happier, and in a better mood.

Table 6.2: relationship between autonomy and symptoms of distress/imbalance (N=406).

Factor	*Dependent variable*	*Correlation*
Quality of Life	Physical Well-being	.42***
	Psychological Well-being	.53***
	Moods and Emotions	.50***
Psychosomatic Symptoms	Emotional Symptoms	-.10
	Physical Complaints	-.10*
Absenteeism	Absence from school	.00
Hyperactivity/Inattention	Hyperactivity/Inattention	-.06

* p < .05, ** p < .01, *** p < .001 (Pearson's r)

6.3 Important factors

Before going on with the multivariate analysis in chapter 7, a summary of important factors from chapters 4, 5, and 6 will be given (also presented in table 6.3).

On the individual level, high ambitions and achievement were associated with less symptoms of hyperactivity. An important risk factor on the individual level is the presence of disorders/disabilities: significant results were found on all outcome variables, with children with disorders/disabilities reporting a lower Quality of Life, showing more Psychosomatic Symptoms and more symptoms of Hyperactivity/inattention, and being more often absent. Coping and Self-esteem were associated with Quality of Life: children with more effective coping skills and a higher self-esteem reported a better Quality of Life.

On the environmental level, academic and interpersonal stressors were associated with Quality of Life, with children who experience less stressors reporting a better Quality of Life. Having problems with peers were also associated with the presence of Emotional Symptoms. Being in a non-traditional family was found to be a risk factor, with children in non-traditional families especially reporting a lower Quality of Life on the dimension Psychological Well-being only. Children in non-traditional families also displayed more Physical Complaints. The experience of negative life events was associated with lower Quality of Life (only on the dimension Psychological Well-being) and more Psychosomatic Symptoms. The presence of financial resources and social support appeared to have a protective function: children who were satisfied with their resources reported a better Quality of Life.

Finally the results on Sense of Coherence showed the importance of the subjective experience of imbalance in life, as it was strongly associated with Quality of Life.

Table 6.3: overview of important factors

Level	*Factors*	*Associated dependent variables*
Individual	Ambitions	Hyperactivity/Inattention
	Achievement	Hyperactivity/Inattention
	Disorders/disabilities	Quality of Life Psychosomatic Symptoms Absenteeism Hyperactivity/Inattention
	Coping	Quality of Life
	Self-esteem	Quality of Life
Environment	Academic stressors	Quality of Life
	Interpersonal stressors (social acceptance and problems with peers)	Quality of Life Emotional Symptoms
	Family structure	Psychological Well-being Physical Complaints
	Negative life events	Psychological Well-being Psychosomatic Symptoms
	Resources & support	Quality of Life
Subjective experience	Sense of Coherence	Quality of Life
	Autonomy	Quality of Life

7. Joint effects of individual factors, environmental factors, and interactional factors

This chapter presents the results on the fifth research question: what is the joint effect of individual factors, environmental factors, and interactional factors on symptoms of distress and imbalance? Only variables that appeared to be relevant after univariate analyses (chapters 3-6) will be included in the multivariate analyses in this chapter. With respect to univariate correlations, this means that only variables with significant correlations of at least .30 are considered to be relevant. However, it was decided to include variables that just did not fully reach this criterion as well.

Before starting the multivariate analyses, correlations between independent variables were checked (appendix 7). The environmental variables Parental divorce, Family status, and Life events were found to be strongly correlated ($r > .80$). A factor analysis on parental divorce, family status, and life events showed that these variables load together on one component, explaining 92.4% of the variance. To avoid problems of multicollinearity without excluding variables, the factor *Family and other life events* will be included in the multivariate analyses instead of the separate variables Parental divorce, Family status, and Life events.

To control for differences in variability of different scales, all data were transformed into Z-scores. The multivariate results of individual factors, environmental factors, and interactional factors on the outcome variables will be presented in sections 7.1 up to 7.4. Section 7.5 will present the final model, and the prevalence of children at risk will be sought out in section 7.6.

7.1 Quality of Life

This section explores the joint effect of individual factors, environmental factors, and interactional factors on the Quality of Life dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions.

7.1.1 Physical Well-being

Relevant independent variables on Physical Well-being were: disorders/disabilities, coping, self-esteem, academic stressors, interpersonal peer stressors (social acceptance and

peer problems), interpersonal family stressors, financial resources, social support, sense of coherence, and autonomy. With these variables, a stepwise multiple regression analysis was done on Physical Well-being.

With stepwise multiple regression analysis, independent variables are added stepwise to the model, based on the F-test. First, the variable with the highest F-ratio is entered into the model. Second, the variable with the next highest F-ratio is entered, and so on (De Vocht, 2002).

As can be seen in table 7.1, the variables Sense of coherence, Interpersonal family stressors, Self-esteem, Peer problems, Autonomy, and Disorders/disabilities were stepwise entered into the model. The variables Coping (ß = .05, n.s.), Academic stressors (ß = .07, n.s.), Social acceptance (ß = .04, n.s.), Financial resources (ß = -.04, n.s.), and Social support (ß = .07, n.s.) were not included in the model.

R^2 reflects the proportion of the variance of Physical Well-being, accounted for by the independent variables (Kerlinger & Lee, 2000). Model 1, with Sense of coherence, explains 20% of the variance of Physical Well-being, while with all variables included (model 6), 30% of the variance is explained by the model. Comparing all models, model 4 is preferred, because it explains a relatively large proportion of the variance with a minimum of independent variables. R^2 increases just a few percents with models 5 and 6. Model 4, with Sense of coherence, Family stressors, Self-esteem, and Peer problems, explains 28% of the variance of Physical Well-being.

Table 7.1: stepwise multiple regression analysis on Physical Well-being (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*	*ß model 4*	*ß model 5*	*ß model 6*
Sense of coherence	.45***	.30***	.23***	.18**	.13	.12
Family stressors		.25***	.21**	.20**	.15*	.15*
Self-esteem			.19**	.21***	.20***	.21***
Peer problems				-.14**	-.14**	-.11*
Autonomy					.15*	.16**
Disorders/disabilities						-.10*
R^2	.20	.24	.26	.28	.29	.30

* p < .05, ** p < .01, *** p < .001

To check for multicollinearity, the Variance Inflation Factor (VIF) is calculated. If VIF is 10 or higher, the problem of multicollinearity may be present (Williams, 2008). With respect to model 4, VIF was found to be 2.38, so no problems of multicollinearity are expected.

7.1.2 Psychological Well-being

Relevant independent variables on Psychological Well-being were: disorders/disabilities, coping, self-esteem, academic stressors, interpersonal peer stressors (social acceptance and peer problems), interpersonal family stressors, family status, financial resources, social support, life events, sense of coherence, and autonomy. Because of the strong correlation between family status and life events ($r = -.88$, $p < .001$), the factor Family and other life events is included in the multivariate analysis instead of the separate variables.

As can be seen in table 7.2, the variables Interpersonal family stressors, Social support, Self-esteem, and Academic stressors were stepwise entered into the model. The following variables were not included in the model: Disorders/disabilities (ß = -.06, n.s.), Coping (ß = .03, n.s.), Social Acceptance (ß = .04, n.s.), Peer problems (ß = -.03, n.s.), Family and other life events (ß = -.03, n.s.), Financial resources (ß = .05, n.s.), Sense of coherence (ß = .05, n.s.), and Autonomy (ß = .05, n.s.).

Looking at the proportion of explained variance (R^2), model 3 is preferred: it explains a large proportion of the variance, and model 4 increases R^2 with only 1%. So Family stressors, Social Support, and Self-esteem explain 52% of the variance of Psychological Well-being. Because the Variance Inflation Factor is below 10 (VIF = 1.91), no problems of multicollinearity are expected.

Table 7.2: stepwise multiple regression analysis on Psychological Well-being (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*	*ß model 4*
Family stressors	.64***	.50***	.41***	.39***
Social support		.32***	.31***	.27***
Self-esteem			.22***	.21***
Academic stressors				.09*
R^2	.40	.49	.52	.53

* p < .05, ** p < .01, *** p < .001

7.1.3 Moods and Emotions

Relevant independent variables on Moods and Emotions were: disorders/disabilities, coping, self-esteem, academic stressors, interpersonal peer stressors (social acceptance and peer problems), interpersonal family stressors, family status, financial resources, social support, life events, sense of coherence, and autonomy. Because of the strong correlation between family status and life events ($r = -.88$, $p < .001$), the factor Family and other life events is included in the multivariate analysis instead of the separate variables.

Table 7.3 shows the variables that were stepwise entered into the model: Sense of Coherence, Interpersonal family stressors, Social acceptance, Self-esteem, and Coping. The following variables were not included in the model: Disorders/disabilities (ß = -.02, n.s.),

Academic stressors (ß = .01, n.s.), Peer problems (ß = -.03, n.s.), Family and other life events (ß = -.03, n.s.), Financial resources (ß = .05, n.s.), Social support (ß = -.02, n.s.), and Autonomy (ß = .01, n.s.).

Looking at the proportion of explained variance, R^2 increases up to .60 in model 3. Models 4 and 5 add only 1 percent to the explained variance. So model 3 is preferred, with Sense of coherence, Interpersonal family stressors, and Interpersonal peer stressors (social acceptance) explaining 60% of the variance of Moods and Emotions. No problems of multicollinearity were detected (VIF = 2.34).

Table 7.3: stepwise multiple regression analysis on Moods and Emotions (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*	*ß model 4*	*ß model 5*
Sense of coherence	.69***	.47***	.36***	.32***	.27***
Family stressors		.38***	.37***	.34***	.34***
Social acceptance			.22***	.20***	.20***
Self-esteem				.12**	.11**
Coping					-.10*
R^2	.47	.57	.60	.61	.61

* p < .05, ** p < .01, *** p < .001

7.2 Psychosomatic Symptoms

This section explores the joint effect of individual factors, environmental factors, and interactional factors on the Psychosomatic Symptoms variables Emotional Symptoms and Physical Complaints.

7.2.1 Emotional Symptoms

Relevant independent variables on Emotional Symptoms were: gender, achievement level, disorders/disabilities, interpersonal peer stressors (social acceptance and peer problems), family status, life events, and sense of coherence. Because of the strong correlation between family status and life events (r = -.88, p < .001), the factor Family and other life events is included in the multivariate analysis instead of the separate variables.

Table 7.4 shows that the variables Peer problems, Achievement level, Disorders/disabilities, and Sense of Coherence were stepwise entered into the model. The variables Gender (ß = .03, n.s.), Social acceptance (ß = -.01, n.s.) and Family and other life events (ß = .08, n.s.) were not included in the model.

The proportion of explained variance, R^2, indicates that model 3 is preferred. Model 3 explains a relatively large proportion of the variance, while model 4 increases R^2 with only

1%. So Peer problems, Achievement level, and Disorders/disabilities explain 25% of the variance of Emotional Symptoms. No problems of multicollinearity were detected (VIF = 1.32).

Table 7.4: stepwise multiple regression analysis on Emotional Symptoms (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*	*ß model 4*
Peer problems	.43***	.41***	.37***	.35***
Achievement level		-.23***	-.21***	-.21***
Disorders/disabilities			.17***	.16**
Sense of coherence				-.10*
R^2	.18	.23	.25	.26

* p < .05, ** p < .01, *** p < .001

7.2.2 Physical Complaints

Relevant independent variables on Physical Complaints were: disorders/disabilities, interpersonal peer stressors (peer problems), parental divorce, family status, life events, and sense of coherence. Because of the strong correlations between family status and parental divorce (r = .85, p < .001), and between family status and life events (r = -.88, p < .001), the factor Family and other life events is included in the multivariate analysis instead of the separate variables.

As can be seen in table 7.5, the variables Peer problems, Family and other life events, and Sense of coherence were stepwise entered into the model. The variable Disorders/disabilities was not included in the model (ß = .09, n.s.).

The proportion of explained variance is very low in models 1, 2 and 3. Model 3 could be preferred, because it increases R^2 from .04 (model 1) up to .09. Peer problems, Family and other life events, and Sense of coherence explain 9% of the variance of Physical Complaints. VIF was found to be 1.37 in model 3, so no problem of multicollinearity is present.

Table 7.5: stepwise multiple regression analysis on Physical Complaints (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*
Peer problems	.21***	.22***	.18**
Family status and other life events		.19***	.17**
Sense of coherence			-.14**
R^2	.04	.07	.09

* p < .05, ** p < .01, *** p < .001

7.3 Absenteeism

This section explores the joint effect of some individual factors on the dependent variable Absenteeism. In the univariate analysis, only on the individual level a few significant results were found on Absenteeism. A significant, but weak correlation was found with Achievement level ($r = -.10$, $p < .05$). When analysing Absenteeism on children with and without disorders/disabilities, a significant chi-square was found. With the variables achievement level and disorders/disabilities (both individual factors), a stepwise multiple regression analysis was done on the dependent variable absenteeism.

Only Disorders/disabilities was entered into the model (ß = .15, $p < .01$), and Achievement level was not included in the model (ß = -.09, n.s.). No multicollinearity is present (VIF = 1.00). R^2 of this model appeared to be .02, so disorders/disabilities explains only 2% of the variance of Absenteeism.

7.4 Hyperactivity/Inattention

This section explores the joint effect of individual and environmental factors on the dependent variable Hyperactivity/Inattention. Based on the univariate results, relevant independent variables on Hyperactivity/Inattention were: gender, ambitions, achievement level, disorders/disabilities, academic stressors, interpersonal peer stressors (peer problems), and social economic status.

As can be seen in table 7.6, the variables Achievement level, Gender, Ambitions, and Peer problems were stepwise entered into the model. The variables Disorders/disabilities (ß = .03, n.s.), Academic stressors (ß = -.08, n.s.), and Social economic status (ß = -.05, n.s.) were not included in the model.

Looking at the proportions of explained variance, R^2 increases from .16 (model 1) up to .29 (model 4). Model 3 is preferred, because it approaches the proportion of explained variance of model 4. So Achievement level, Gender, and Ambitions explain 27% of the variance of Hyperactivity/Inattention. No problems of multicollinearity were detected (VIF = 1.47).

Table 7.6: stepwise multiple regression analysis on Hyperactivity/Inattention (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*	*ß model 4*
Achievement level	-.41***	-.38***	-.33***	-.31***
Gender		-.29***	-.25***	-.24***
Ambitions			-.19***	-.18***
Peer problems				.14**
R^2	.16	.25	.27	.29

* p < .05, ** p < .01, *** p < .001

7.5 Final model

This paragraph will work up to the final model that can be constructed, based on the data and results from this study. Summarising the results on multivariate analyses, very low proportions of explained variance were found on Physical Complaints (9%) and Absenteeism (2%). Moderate proportions of explained variance were found on Physical Well-being (28%), Emotional Symptoms (25%), and Hyperactivity/Inattention (27%). High proportions of explained variance were found on Psychological Well-being (52%) and Moods and Emotions (60%).

Although somewhat different independent variables ended up in the models of Psychological Well-being and Moods and Emotions, the initial list of relevant variables was exactly the same. Moreover, the dimensions Psychological Well-being and Moods and Emotions were found to be strongly correlated ($r = .63$, $p < .001$). In the initial version of the Kidscreen questionnaire, items on Psychological Well-being and Moods and Emotions were actually grouped on the same domain (The Kidscreen Group Europe, 2006).

Because of the correspondences between Psychological Well-being and Moods and Emotions, it was decided to put these dimensions together in the final model. To obtain one outcome variable, the scale scores on both dimensions were added up, resulting in a total score 'Psychological Well-being and Emotions' (Cronbach's $\alpha = .89$).

To build the final model, a stepwise multiple regression analysis was done on Psychological Well-being and Emotions, using all relevant variables on both Psychological Well-being and Moods and Emotions (disorders/disabilities, coping, self-esteem, academic stressors, interpersonal peer stressors (social acceptance and peer problems), interpersonal family stressors, family and other life events, financial resources, social support, sense of coherence, and autonomy).

Table 7.7 shows the final model on Psychological Well-being and Emotions, in which the independent variables Family stressors, Sense of coherence, Social acceptance, Self-esteem, and Social support were stepwise entered. The following variables were not included

in the model: Disorders/disabilities (ß = -.03, n.s.), Coping (ß = -.05, n.s.), Academic stressors (ß = .04, n.s.), Peer problems (ß = -.01, n.s.), Family and other life events (ß = -.04, n.s.), Financial resources (ß = .06, n.s.), and Autonomy (ß = .04, n.s.).

Looking at the proportion of explained variance, R^2 increases from .51 (model 1) up to .68 (model 5). Model 3 is preferred, because models 4 and 5 add only a few percents to the explained variance. So Family stressors, Sense of coherence, and Interpersonal peer stressors (social acceptance) explain 66% of the variance of Psychological Well-being and Emotions. No problems of multicollinearity were detected (VIF = 2.35).

Table 7.7: stepwise multiple regression analysis on Psychological Well-being and Emotions (N=406)

Variables	*ß model 1*	*ß model 2*	*ß model 3*	*ß model 4*	*ß model 5*
Family stressors	.71***	.46***	.46***	.42***	.40***
Sense of coherence		.44***	.33***	.29***	.25***
Social acceptance			.20***	.17***	.16***
Self-esteem				.15***	.16***
Social support					.11**
R^2	.51	.63	.66	.67	.68

* p < .05, ** p < .01, *** p < .001

In the end, a stepwise multiple regression analysis was done with the variables from model 3 (family stressors, sense of coherence, and social acceptance), and the interaction terms between these variables (family stressors * sense of coherence; family stressors * social acceptance; sense of coherence * social acceptance; family stressors * sense of coherence * social acceptance). Interaction terms were calculated by multiplying Z-scores of the variables family stressors, sense of coherence and social acceptance.

Adding the interaction terms to the analysis actually yielded the same model, with the variables family stressors, sense of coherence, and social acceptance included in the model, explaining 65% of the variance of Psychological Well-being and Emotions. The interaction terms were not included in the model (family stressors * sense of coherence: ß = -.05, n.s.; family stressors * social acceptance: ß = -.02, n.s.; sense of coherence * social acceptance: ß = -.04, n.s.; family stressors * sense of coherence * social acceptance: ß = -.05, n.s.). So adding interaction terms to the model does not increase the proportion of explained variance. Again, no problems of multicollinearity are expected (VIF = 2.34).

According to the final model (table 7.7), children's Psychological Well-being and Emotions can be explained by Family Stressors, Sense of Coherence, and Social Acceptance. This means that children who do not feel secure at home, who perceive situations as incomprehensible and unmanageable, and who feel bullied and rejected by peers, run the risk to have no pleasure in life, and to feel depressed and unhappy.

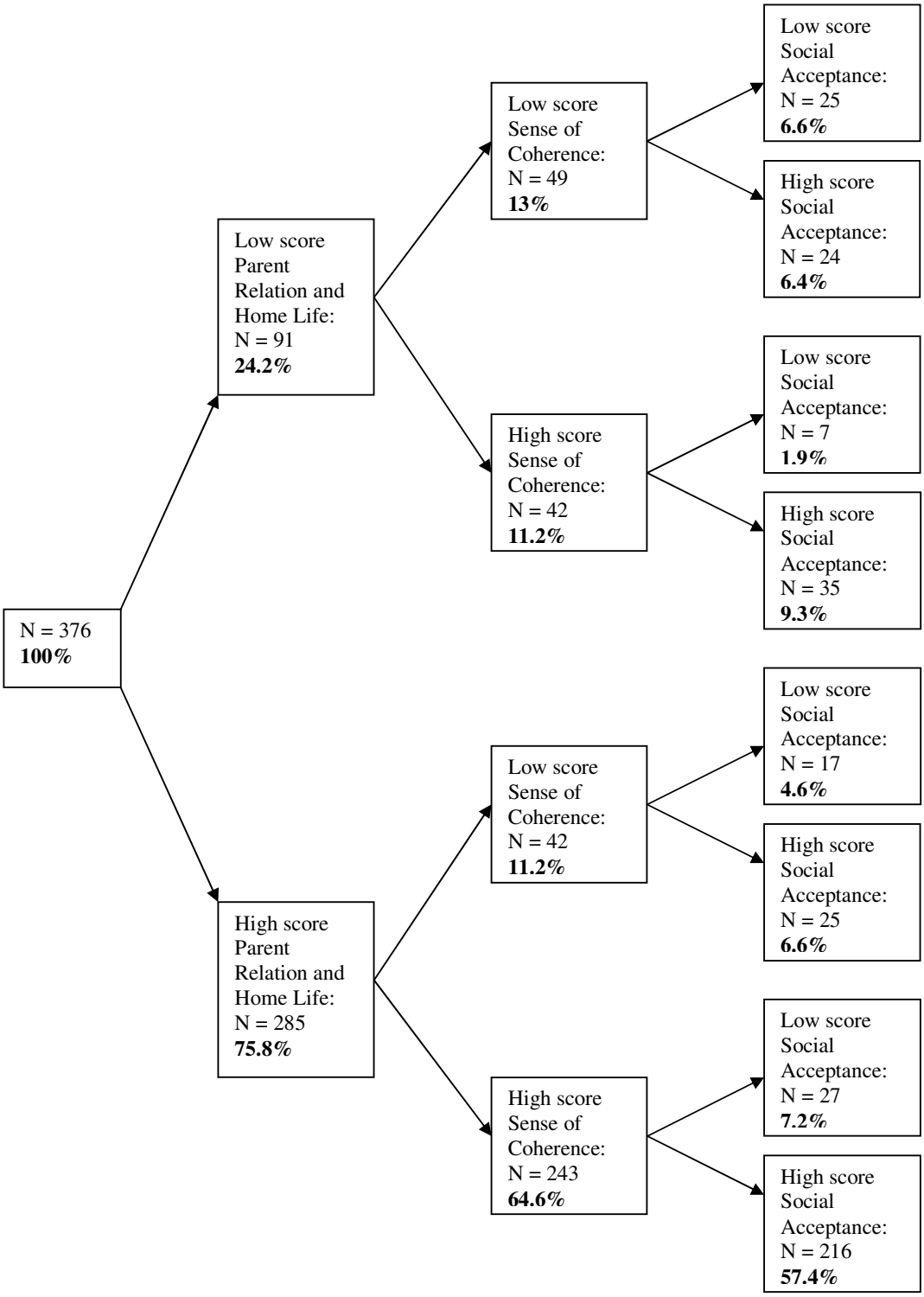
7.6 Prevalence of children at risk

After presenting the final model, the question remains how many children are at risk for a low psychological well-being and negative emotions. To answer this question, a flow chart is presented in this section, which categorises the scores on the independent variables Family Stressors, Sense of Coherence, and Social Acceptance into low and high scores. Only cases with complete data on all three independent variables were included (N = 376, missing = 30).

With respect to family stressors, a low score on the Kidscreen dimension Parent Relation and Home Life (reference score < 45) is considered to be a risk score. Average (reference score 45 – 55) and high scores (reference score > 55) on this dimension were put together in the high category, because an average/high score is considered not to be a risk score. As can be seen in the flow chart, 24.2% of all participants has a low score on the dimension Parent Relation and Home Life. These children experience family stressors by feeling alone and not appreciated, and perceiving parents as unavailable/unfair (The Kidscreen Group Europe, 2006).

With respect to Sense of Coherence, scores were divided in quartiles, after which scores in the lowest quartile (scale score < 34) are considered to be risk scores. Scores in the second, third, and fourth quartiles (scale score ≥ 34) are categorised together as 'high', because they are considered not to be risk scores. According to the flow chart, 24.2% has a low score on the Sense of Coherence questionnaire. These children perceive situations as less comprehensible, less manageable, and less meaningful, and are therefore more prone to the aversive consequences of stressors (Jellesma, Meerum Terwogt, & Rieffe, 2006).

With respect to Social Acceptance, a low score on the Kidscreen dimension Social Acceptance (Bullying) (reference score < 45) is considered to be a risk score. Again, average (reference score 45 – 55) and high scores (reference score > 55), being considered as no risk score, were put together in the high category. According to the flow chart, 20.3% has a low score on the Dimension Social Acceptance (Bullying). These children experience interpersonal peer stressors by feeling tormented, bullied, and rejected by peers (The Kidscreen Group Europe, 2006).



According to the final model (§7.5), Family Stressors, Sense of Coherence, and Social Acceptance together explain a large amount of the variance on Psychological Well-being and Emotions. Therefore, especially those children who have a low score on all three independent variables are considered to be at risk for a low psychological well-being and

negative emotions. As can be seen in the flow chart, this applies to 6.6% of all participants. Different combinations of low and high scores are altogether found in 36% of all participants, with percentages per category ranging from 1.9% to 9.3%. Finally, high scores on all three independent variables are considered to be protective with respect to psychological well-being and emotions. The flow chart shows that this applies to 57.4% of participants. In other words, the majority of children has normal/high scores on Parent Relation and Home Life, Sense of Coherence, and Social Acceptance. These children would have a good psychological well-being and positive emotions as well. So the absence of family stressors, a high sense of coherence and feeling socially accepted seems to protect children against a low psychological well-being and negative moods and emotions.

8. Conclusion and Discussion

This master thesis addressed five research questions:

1. What is the prevalence of symptoms of distress and imbalance in children?
2. What is the effect of individual factors on symptoms of distress and imbalance?
3. What is the effect of environmental factors on symptoms of distress and imbalance?
4. What is the effect of interactional factors on symptoms of distress and imbalance?
5. What is the joint effect of individual factors, environmental factors, and interactional factors on symptoms of distress and imbalance?

This chapter (sections 8.1 up to 8.5) presents conclusions and some topics for discussion on each research question. Some implications for research and practice will be discussed in section 8.6.

8.1 Prevalence of symptoms of distress and imbalance in children

This section presents conclusions on the first research question, about the prevalence of symptoms of distress and imbalance in children. At first, Quality of Life is relatively high compared to the norm data on the dimensions Physical Well-being, Psychological Well-being, and Moods and Emotions. As can be seen in table 8.1, on all three dimensions the percentage of participants with a low score (< 45) is smaller than 31% (norm data). The percentage of children with an average score (45 – 55) is a little lower on Physical Well-being. On the dimensions Psychological Well-being and Moods and Emotions, the percentage of children with an average score is comparable to the norm data (38%). On all three dimensions, percentages of participants with a high score (> 55) are larger than 31% (norm data). So with respect to Physical Well-being, Psychological Well-being, and Moods and Emotions, scores on these Quality of Life dimensions are relatively high in the sample of this study.

Table 8.1: Aspects of Quality of life

Reference score	*Norm data*	*Physical well-being*	*Psychological well-being*	*Moods and emotions*
< 45	31%	24.9%	19.0%	26.1%
45 – 55	38%	34.5%	38.7%	38.4%
> 55	31%	38.4%	41.4%	33.5%

Second, with respect to Psychosomatic Symptoms, the prevalence of Emotional Symptoms and Physical Complaints was studied. According to the teachers, 3% of the children often displays physical complaints. 4.9% of the children were scored by their teachers within the abnormal range on the SDQ scale Emotional Symptoms. This corresponds to the British norm data, in which 4.8% of the children were scored 'abnormal' by their teachers (Youth in Mind, 2001b). A small difference was found between boys and girls, with a somewhat larger percentage of boys being scored in the borderline range. So boys might display slightly more emotional symptoms than girls.

Third, with respect to Absenteeism, a large majority of children (66%) is (almost) never absent. Comparable to the results on Psychosomatic Symptoms, less than 5% was scored 'problematic': 4.2% was reported to be often absent.

Fourth, table 8.2 shows the percentages of children who display symptoms of hyperactivity and inattention (abnormal score on SDQ scale Hyperactivity/Inattention) for both this study and the British norm data (Youth in Mind, 2001b). In this study, the percentage of children with an abnormal score on Hyperactivity/Inattention seemed to be very high (11.1%), compared to the prevalence of ADHD in the Netherlands (3-5%). Nevertheless, results corresponded with British SDQ norm data, in which 12.7% of all children was rated as abnormal on the SDQ scale Hyperactivity/Inattention. A remarkable difference was found between boys and girls, with much more boys (20%) than girls (3.7%) showing symptoms of hyperactivity and inattention. Also this difference between boys and girls corresponded more or less with the British norm data. However, a fifth of the boys displays symptoms of hyperactivity and inattention. So some symptoms of hyperactivity and inattention can be considered as normal boys' behaviour. Nevertheless, because teachers, which are mostly female nowadays, rated these behaviours, it could also be wondered whether nowadays' educational system is better adapted to girls than to boys.

Table 8.2: % abnormal score on SDQ scale Hyperactivity/Inattention

	Total sample	*Boys*	*Girls*
Study	11.1	20.0	3.7
Norm data	12.7	19.1	6.4

In this study, scores on aspects of Quality of Life were relatively high, results on Emotional Symptoms and Hyperactivity/Inattention corresponded with the British norm data, and results on Physical Complaints and Absenteeism did not cause any concern. Although the question about the prevalence of symptoms of distress and imbalance still remains difficult to answer, distress and imbalance do not seem to occur often in this sample.

8.2 Effects of individual factors

This section presents conclusions on the second research question: what is the effect of individual factors on symptoms of distress and imbalance? The individual factors that were thought to play a role are Ambitions, Achievement level, Disorders and disabilities, Coping and Self-esteem.

At first, ambitions were taken into account, because of the central role of high ambitions creating a state of exhaustion (i.e. imbalance). In other words, high ambitions were expected to create symptoms of stress and imbalance. When analysing the effect of ambitions on symptoms of distress and imbalance, ambitions appeared to correlate negatively with hyperactivity/inattention: children with a higher tendency to achieve were reported by the teachers as less hyperactive. So against the expectation, children with high ambitions generally showed less symptoms of hyperactivity and inattention.

Second, achievement level was taken into account, because low achievement was identified as a risk factor for stress and imbalance. Achievement level correlated negatively with hyperactivity/inattention: teachers reported less hyperactivity and inattention on children that achieve better in school. As expected, low achieving children showed more symptoms of hyperactivity and inattention, which might reflect stress. However, relevant correlations were only found with hyperactivity/inattention.

A problem with the correlational analyses as done on Ambitions and Achievement, is that the direction of the relationship between variables cannot be established. The direction of the results on ambitions and achievement is clarified by Minnaert's (2002) description of the (recursive) relation between motivation, self-regulation and achievement: motivated students achieve better when they make use of self-regulation processes. Self-regulation of attention, an important metacognitive skill, encourages the process of learning and therefore improves achievement. Moreover, the development of metacognitive skills can improve motivation as well (Minnaert, 2002). So self-regulation of attention improves motivation and achievement.

Third, having a (behavioural) disorder or (learning) disability was thought to be a risk factor as well. Children with disorders/disabilities reported a lower quality of life, and teachers reported more psychosomatic symptoms, more absenteeism, and more hyperactivity/inattention on children with disorders/disabilities. Except for hyperactivity and inattention, no differences were found between children with learning disabilities, behavioural disorders and physical problems. Because disorders and disabilities can affect different aspects of development (De Groot & Paagman, 2000), having a disorder or disability can be identified as a risk factor on all symptoms of distress and imbalance.

Fourth, coping was thought to play an important role in the experience of stress and imbalance in life. Especially those with ineffective coping skills were thought to be at risk to experience distress. On the other hand, effective coping skills were thought to serve as a protective factor. Relevant correlations were found between coping and the quality of life dimensions psychological well-being and moods and emotions: children with less effective coping strategies feel unhappier and have less pleasure in life. Effective coping enhances psychological adjustment (Elias, 1989). So with respect to quality of life, ineffective coping serves as a risk factor, and effective coping has a protective function.

Fifth, high self-esteem was thought to be a protective factor, but low self-esteem was thought to be a psychological stressor and therefore a risk factor with respect to the experience of distress and imbalance. Relevant correlations were found between self-esteem and all quality of life dimensions: children with a good self-esteem feel physically more healthy, happier, and in a better mood. This is confirmed by the literature: individuals who have a positive sense of self-worth tend to be happier than others and deal more successfully with failure experiences and other adverse circumstances (Elbaum & Vaughn, 2003). So with respect to quality of life, high self-esteem has a protective function, and low self-esteem is a risk factor.

Answering the question what the effect of individual factors on symptoms of distress and imbalance is, ambitions and achievement have an effect on symptoms of hyperactivity and inattention, and coping and self-esteem are related to the different aspects of quality of life. Having a disorder or disability appeared to be the most important factor on the individual level, with significant results on all symptoms of distress and imbalance. Although children with disabilities were found to show more symptoms of distress and imbalance than children without disabilities, on most outcome variables no differences could be found between children with learning disabilities, behavioural disorders and physical problems. The same was true for children with one or more problems. This might be due to a smaller N. The effects of different disorders/disabilities and the number of problems should be studied in further research.

8.3 Effects of environmental factors

This section presents conclusions on the third research question: what is the effect of environmental factors on symptoms of distress and imbalance? The environmental factors that were thought to play a role are Academic stressors, Interpersonal stressors (peers and family), Family status, Expectations and demands, SES, Resources, and Life events.

Academic and interpersonal stressors were included, because these were identified as the largest categories of (environmental) stressors for children. First, academic stressors were studied. Relevant correlations were found between academic stressors and all quality of life dimensions: children who do not experience academic stressors, feel physically more healthy, happier, and in a better mood. Probably, some indirect effects play a role as well: children's experiences in school can have a powerful influence on their self-perceptions (Elbaum & Vaughn, 2003), which in turn affect their well-being. These indirect effect should be studied in further research.

Second, interpersonal peer stressors were studied. The experience of interpersonal peer stressors was assessed by the Kidscreen dimension Social acceptance/bullying, and by the SDQ scale Peer problems. Social acceptance was found to correlate with the quality of life dimensions: children who feel socially accepted, feel more healthy, happier, and in a better mood. With respect to peer problems, a correlation was found with emotional symptoms: children who have problems with peers display more emotional symptoms (according to their teachers). Although both social acceptance and peer problems reflect the experience of interpersonal peer stressors, results are somewhat different. This can be explained by the type of respondent: the questions on social acceptance were answered by the children, and the questions on peer problems were answered by the teachers. Social acceptance, one of the Kidscreen dimensions, correlated with other Kidscreen dimensions, answered by the children as well. The same is for peer problems: this SDQ scale correlated with another SDQ scale, which was also filled out by the teachers. Moreover, whether items were formulated positively or negatively could have played a role as well: positively formulated items correlated with other positive items (Kidscreen), and negatively formulated items correlated with other negative items (SDQ).

Third, interpersonal family stressors were studied. Interpersonal stressors within the family were assessed by the Kidscreen dimension Parent relation and home life, examining the child's relationship with his/her parents and the atmosphere in the child's home. Strong correlations were found between family stressors and all quality of life dimensions: children who do not experience interpersonal family stressors, feel more healthy, happier, and in a better mood. So the relationship between parents and child affects a child's well-being, which is not surprising considering the important role of interactions within a rearing situation (Van der Kooij, Been, Noordman, & Van der Sluis, 1990).

Another aspect of family life that was included is parental divorce and family status. Fourth, the results on parental divorce could not fully confirm that parental divorce is extremely stressful for children (Karr & Johnson, 1991; Moos, 2004; Plante & Plante Goldfarb, 1993; Romano, 1997). No significant differences were found between children of

divorced and not-divorced parents, except for Physical Complaints: children who's parents are divorced display a little more physical complaints.

Fifth, analysing family status, children in nuclear families were compared to children in non-nuclear families, because non-traditional families were thought to hold more (interpersonal) stressors and less structure than nuclear families (Moos, 2004). Psychological well-being turned out to be lower in children in non-nuclear families, and these children appeared to display more psychosomatic symptoms as well. So family status plays a role in children's psychological well-being and the presence of psychosomatic symptoms.

Sixth, parents' expectations and demands were thought to play a role in causation and maintenance of distress in children, especially because school work related sources of stress can originate from demands set by a child's environment. However, no relevant results with respect to parents' expectations and demands were found in this study.

Seventh, SES was included, with high SES considered as a risk factor for development of distress and imbalance. No relevant results were found with respect to SES. Nevertheless, the weak correlation with hyperactivity/inattention indicates a protective function of high SES, regarding symptoms of hyperactivity and inattention.

Financial resources and social support were included, because resources were thought to have a protective function on the environmental level. Eighth, financial resources were studied. Relevant correlations were found between financial resources and the quality of life dimensions psychological well-being and moods and emotions: children who feel satisfied with their financial resources, feel happier and in a better mood. So the satisfaction with financial resources plays a role in some aspects of quality of life.

Ninth, the analysis of social support showed relevant correlations between social support and all quality of life dimensions: children who can rely on social support, feel more healthy, happier, and in a better mood. So feeling accepted and supported also has a protective function with respect to quality of life.

Tenth, life events were included, because life events can have their impact on distress and imbalance, occurring on different domains in an individual's environment (e.g. parents, school, peers). Psychological well-being turned out to be lower in children who experienced a negative life event, and these children show more psychosomatic symptoms as well. So the experience of a life event plays a role in children's psychological well-being and the presence of psychosomatic symptoms. Therefore, the experience of a negative life event could serve as a risk factor for children's' well-being.

Answering the question what the effect of environmental factors on symptoms of distress and imbalance is, it can be concluded that an individual's experience of these environmental factors plays an important role, especially with respect to aspects of quality of life. The variables Academic stressors, Interpersonal peer stressors (social acceptance),

Interpersonal family stressors, Financial resources, and Social support correlated significantly with the Quality of Life dimensions Physical well-being, Psychological well-being, and/or Moods and emotions. These independent variables were all assessed by various Kidscreen dimensions, asking the child about his/her perception and experience. Given the correlations found with the quality of life dimensions, an individual's experience of environmental factors is considered to play an important role in the experience of distress and imbalance. Also the situation at home can play a role, given the effect of family status and life events (often parental divorce) on psychological well-being and psychosomatic symptoms.

8.4 Effects of interactional factors

This section presents conclusions on the fourth research question: what is the effect of interactional factors on symptoms of distress and imbalance? Two factors are considered to be important: Sense of Coherence (subjective experience of a situation), and Autonomy.

At first, sense of coherence was taken into account, because an individual's subjective experience of situations determines the possible risk of distress. When analysing the effect of sense of coherence on symptoms of distress and imbalance, strong significant correlations were found between sense of coherence and the quality of life dimensions physical well-being, psychological well-being, and moods and emotions. Children with a higher sense of coherence reported a better quality of life on these domains: when a child feels that situations are comprehensible, manageable, and meaningful, he/she feels more healthy, happier and in a better mood. Because of the strong significant correlations, sense of coherence can be considered as an important factor with respect to children's quality of life.

Second, autonomy was included, because autonomy was thought to be a mediator of the relation of environmental factors to children's well-being. Relevant correlations were found between autonomy and all quality of life dimensions: children who feel independent and free to decide, feel more healthy, happier, and in a better mood as well. Minnaert (2002) points to the importance of autonomy within educational contexts as well. Based on this results, feeling autonomous can protect a child against distress and imbalance. However, it should be noted that both too much parental control (i.e. no autonomy), as well as allowing too much autonomy (i.e. no control) is considered ineffective parental behaviour, having negative consequences with respect to a child's development (Van der Kooij et al., 1990).

Answering the question what the effect of interactional factors on symptoms of distress and imbalance is, it can be concluded that these factors have comparable effects showing relevant correlations with the Quality of Life dimensions. A reasonable overlap

might exist between Sense of coherence and Autonomy; relatively high correlations between these variables were found as well (appendix 7).

8.5 Joint effects of individual factors, environmental factors, and interactional factors

This section presents conclusions on the fifth research question: what is the joint effect of individual factors, environmental factors, and interactional factors on symptoms of distress and imbalance? On each outcome variable, a model was constructed using stepwise multiple regression analyses.

At first, models on the Quality of Life dimensions were presented. The model on Physical Well-being consisted of Sense of coherence, Family stressors, Self-esteem, and Peer problems. This model explained 28% of the variance of Physical Well-being. According to this model, children feel physically more healthy if they feel that situations are comprehensible, manageable, and meaningful, feel secure at home, have a good self-esteem, and do not experience problems with peers.

The model on Psychological Well-being consisted of Family stressors, Social support, and Self-esteem, explaining 52% of the variance on Psychological Well-being. According to the model, children feel more happy if they feel secure at home, feel socially accepted and supported, and have a good self-esteem.

The model on Moods and Emotions included the variables Sense of coherence, Family stressors, and Social acceptance, explaining 60% of the variance on Moods and Emotions. So children feel in a better mood if situations are comprehensible, manageable, and meaningful for them, if they feel secure at home, and if they feel respected and do not feel bullied by their peers.

The independent variables Sense of coherence, Family stressors, and Self-esteem were entered more than once into the models on Quality of Life dimensions. So with respect to quality of life, the feeling that situations are comprehensible, manageable, and meaningful, feeling secure at home, and having a good self-esteem play an important role.

Second, models on the Psychosomatic Symptoms variables (Emotional Symptoms and Physical Complaints) were presented. The model on Emotional Symptoms consisted of Peer problems, Achievement level, and Disorders/disabilities and explained 25% of the variance on Emotional Symptoms. According to this model, children who experience problems with peers, who achieve low in school, and who have a disorder or disability, display more emotional symptoms.

The model on Physical Complaints consisted of Peer problems, Family status and other life events, and Sense of coherence: children who experience problems with peers, who live in a non-traditional family, and who have a low sense of coherence, display more physical complaints. However, this model was not satisfying, explaining only 9% of the variance on Physical Complaints.

Third, it was tried to build a model on the outcome variable Absenteeism, resulting in a model with only Disorders/disabilities included and explaining 2% of the variance on Absenteeism. So no satisfying model on Absenteeism could be composed by using the variables from this study.

Fourth, the model on Hyperactivity/Inattention consisted of Achievement level, Gender, and Ambitions, explaining 27% of the variance on Hyperactivity/Inattention. According to this model, boys who achieve low in school and have a low tendency to achieve, display more symptoms of hyperactivity and inattention. The model on Hyperactivity/Inattention consisted of somewhat different variables than the other models. So Hyperactivity/Inattention seems to be a different type of outcome variable than the Quality of Life dimensions and Emotional Symptoms. Based on these results, displaying symptoms of hyperactivity and inattention might be a more or less isolated problem with respect to the other symptoms of distress and imbalance.

The models on the Quality of Life dimensions Psychological Well-being and Moods and Emotions showed a large proportion of explained variance. Both dimensions were found to correlate strongly as well. Although somewhat different variables ended up in the models of these dimensions, the initial list of relevant variables was exactly the same. Since the items of Psychological Well-being were formulated positively, and the items of Moods and Emotions were formulated negatively, the way items were formulated could have played a role in which items ended up in the models. Because of the correspondence between the dimensions Psychological Well-being and Moods and Emotions, these dimensions were put together in the final model, creating one outcome dimension ‘Psychological Well-being and Emotions’.

The final model on Psychological Well-being and Emotions consisted of Family stressors, Sense of coherence, and Social acceptance. The final model explained 66% of the variance on Psychological Well-being and Emotions. According to the final model, children feel happier and in a better mood if they feel secure at home, if situations are comprehensible, manageable, and meaningful for them, and if they feel respected and do not feel bullied by their peers.

Answering the question what the joint effect of individual factors, environmental factors, and interactional factors on symptoms of distress and imbalance is, it can be

concluded that individual factors are subordinate to environmental and interactional factors. Especially in the models on the Quality of Life dimensions, sense of coherence and environmental factors were included more often than individual factors. Moreover, no individual factors were included in the final model. Probably, the effect of individual factors was dominated by the effect of sense of coherence, being an interactional factor between individual and environment.

An important underlying question was how many children are at risk for a low psychological well-being and negative emotions. It was hypothesised that this applies to the children who have low scores on Family stressors, Sense of coherence, and Social acceptance. The flow chart in section 7.6 made clear that 6.6% of the children do not feel secure at home, perceive situations as incomprehensible and unmanageable, and feel bullied and rejected by peers. So 6.6% of the children might run the risk to have no pleasure in life, and to feel depressed and unhappy. However, this percentage was comparable to percentages of children with other combinations of scores on Family stressors, Sense of coherence, and Social acceptance. Most noticeable was the large percentage (57.4%) of children with high scores on all three independent variables. So to conclude, the majority of children feels secure at home, perceives situations as comprehensible, manageable, and meaningful, and does not feel bullied by peers, which protects them against a low psychological well-being and negative emotions. Probably, the overrepresentation of children with high scores caused the strong correlations, resulting in the large amount of explained variance of the final model.

8.6 Implications for research and practice

As was noted before, a problem with the correlational analyses in this study is that the direction of the relationship between variables cannot be established. With respect to the variables Ambitions and Achievement, the direction of the relationship could by clarified by literature, but with many other variables the directions remain unclear. Therefore, this should be studied in further research.

Some problems might exist with the representativeness of the sample: all participants come form two large rural communities in the north of The Netherlands. So no children living in urban area's were included. With respect to further research, more dispersion of participants over different area's is recommended.

Another problem concerns the composition of the questionnaires. Because no ready to use instrument on childhood distress and imbalance was available, different instruments were

used to measure different aspects. However, these instruments did not aim at distress and imbalance originally. To know more about distress and imbalance in children, a specific instrument should be designed. Once such an instrument is available, further research could also focus at identifying children at risk for distress and imbalance.

Although it remains difficult to make conclusions on childhood distress and imbalance, some important conclusions were drawn with respect to psychological well-being and emotions (quality of life). Besides feeling secure at home and feeling socially accepted by peers, sense of coherence played an important role. This corresponds to the conclusion that an individual's experience of environmental factors plays an important role (section 8.3). As was stated in the introduction (section 1.2.3), it is the child's perception of a particular event that makes the event a stressor (Helms, 1996).

This conclusion holds important implications for practice. An individual's perception of a situation is determined by sense of coherence. Factors that prevent stressful appraisals, or that moderate the impact of stressful appraisals (such as sense of coherence) may be potential targets for preventive action (Torsheim et al., 2001). So in other words, when a child is faced with stressful conditions, it might be more effective to pay attention to the way a child experiences these conditions, rather than the stressor itself. Sometimes, the stressor (such as having a disorder or disability) cannot be changed, but whether the child perceives the stressors as comprehensible, manageable, and meaningful might be liable for intervention.

Yet, to our knowledge, no intervention programs aiming at sense of coherence for children are available. Moreover, it is not clearly examined how children's sense of coherence can be improved by an intervention program (Glanz, Maskarinec, & Carlin, 2005). To develop such a program might be one of the most important recommendations of this study for both research and practice. More interventional studies are needed in order to examine in details the potential and limitations for enhancing children's sense of coherence (Margalit & Efrati, 1996).

As a lower sense of coherence is also related to academic difficulties (Margalit & Efrati, 1996; Efrati-Virtzer & Margalit, 2009), there is a need for teacher training programmes to increase their professional awareness to students' emotional needs (Efrat-Virtzer & Margalit, 2009). Not only teachers, but also other professionals such as student counsellors should pay attention to the way a child experiences potentially stressful conditions.

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Appendix 1: information letter schools

Geachte leerkracht van groep 7 en 8,

"Kinderen hebben het druk, van wie zouden ze dát nou hebben?" Met deze campagne vestigde Sire in 2002 de aandacht op de drukke levens van de kinderen van de 'achterbankgeneratie'. Kinderen zouden tegenwoordig over te weinig vrije tijd beschikken, ze zouden leven met volle agenda's en niet meer de kans krijgen om te leren van spontane acties. Met andere woorden, de levens van kinderen zouden onder druk staan. Hoewel professionals het er over eens zijn dat dit niet goed is voor de ontwikkeling van een kind, is tot nu toe geen onderzoek gedaan naar de omvang van het probleem.
Vanwege het gebrek aan wetenschappelijke informatie over dit onderwerp werd een vraag bij de Wetenschapswinkel Geneeskunde en Volksgezondheid (UMCG) ingediend: *kunnen kinderen burnout raken?*

In het kader van mijn afstudeeronderzoek (orthopedagogiek en researchmaster human behaviour in social contexts, Rijksuniversiteit Groningen) ben ik deze vraag gaan bestuderen. Daartoe zijn twee vragenlijsten ontwikkeld. Om een zo compleet mogelijk beeld te krijgen, is gekozen voor een vragenlijst voor kinderen en een vragenlijst voor leerkrachten. De vragenlijst voor kinderen is voor leerlingen in groep 7 en 8 en heeft betrekking op o.a. lichamelijke en geestelijke gezondheid, sociaal en emotioneel functioneren, school, vrije tijd en thuis. De vragenlijst voor leerkrachten bevat naast een algemeen onderdeel vragen over concentratievermogen, emotioneel functioneren en omgang met leeftijdgenoten.

De gang van zaken tijdens het onderzoek is als volgt: de leerlingen zullen ongeveer 45 minuten nodig hebben om hun vragenlijst in te vullen. De onderzoeker zal deze zelf met uw klas komen afnemen. Terwijl de onderzoeker de vragenlijst bij de leerlingen afneemt, kunt u de vragenlijst voor leerkrachten invullen. Deze bestaat uit een klassenoverzicht (algemeen deel) en een korte vragenlijst per leerling.
Hoewel ik mij ervan bewust ben dat dit wel wat inspanning van u vraagt, stel ik het oordeel van een professional over elke leerling zeer op prijs. Door zelf de vragenlijst bij de klassen af te nemen, hoop ik u in de gelegenheid te stellen de vragenlijsten in te kunnen vullen. Als blijk van waardering voor uw medewerking ontvangt u een cadeaubon t.w.v. €25,-.
Alle vragenlijsten zullen volledig anoniem verwerkt worden. Daarnaast zal er een brief voor de ouders/verzorgers opgesteld worden, die u voordat het onderzoek plaatsvindt aan uw leerlingen mee kunt geven. Indien ouders bezwaar hebben tegen (anonieme) deelname, kunnen zij dat middels een antwoordstrookje aangeven.
Vanzelfsprekend ontvangt u na afronding van het onderzoek een verslag met de resultaten en conclusies.

Mocht u bereid zijn deel te nemen aan het onderzoek, dan verzoek ik u dit aan te geven door deze email te beantwoorden. Ik zal dan contact met u opnemen om een afspraak te maken voor het afnemen van de vragenlijsten. Dit zal plaatsvinden vanaf maandag 10 maart, hoogstwaarschijnlijk op maandagen en dinsdagen (in overleg kan een andere dag gevonden worden). Uw medewerking wordt bijzonder op prijs gesteld!

Met vriendelijke groeten,
Marijn Nijboer (student onderzoeker)
Jelte Bouma (coördinator Wetenschapswinkel Geneeskunde en Volksgezondheid)

Email: j.m.nijboer@med.umcg.nl
Telefoon: 050-3637882 (maandag en dinsdag), 06-40381101 (alle dagen)

Appendix 2: agreement letter parents

Geachte ouders/verzorgers,

"Kinderen hebben het druk, van wie zouden ze dát nou hebben?" Met deze campagne vestigde Sire in 2002 de aandacht op de drukke levens van de kinderen van de 'achterbankgeneratie'. Kinderen zouden tegenwoordig over te weinig vrije tijd beschikken, ze zouden leven met volle agenda's en niet meer de kans krijgen om te leren van spontane acties. Met andere woorden, de levens van kinderen zouden onder druk staan. Hoewel professionals het er over eens zijn dat dit niet goed is voor de ontwikkeling van een kind, is tot nu toe geen onderzoek gedaan naar de omvang van het probleem.
Vanwege het gebrek aan wetenschappelijke informatie over dit onderwerp werd een vraag bij de Wetenschapswinkel Geneeskunde en Volksgezondheid (UMCG) ingediend: *kunnen kinderen burnout raken?*

In het kader van mijn afstudeeronderzoek (orthopedagogiek en researchmaster human behaviour in social contexts, Rijksuniversiteit Groningen) ben ik deze vraag gaan onderzoeken.
De school van uw zoon of dochter heeft aangegeven mee te willen werken aan dit onderzoek. Dit betekent dat uw kind binnenkort een vragenlijst in zal vullen over o.a. lichamelijke en geestelijke gezondheid, sociaal en emotioneel functioneren, school, vrije tijd en thuis. Daarnaast zal de leerkracht een aantal vragen over uw kind beantwoorden die gaan over concentratievermogen, emotioneel functioneren, omgang met leeftijdgenoten, schoolprestaties en thuissituatie.

Alle vragenlijsten zullen volledig anoniem verwerkt worden. Mocht u er desondanks bezwaar tegen hebben dat uw zoon of dochter aan dit onderzoek deelneemt, dan kunt u bijgevoegd antwoordstrookje aan uw kind meegeven naar school. De leerkracht zal er dan zorg voor dragen dat uw kind de vragenlijst niet in hoeft te vullen. De gegevens van uw kind zullen dan ook niet meegenomen worden in de lijst die de leerkracht invult.

Het onderzoek zal op [*naam basisschool*] plaatsvinden op [*datum*]. Heeft u er bezwaar tegen hebben dat uw kind (anoniem) deelneemt aan het onderzoek, dan verzoek ik u bijgevoegd antwoordstrookje vóór [*datum*] aan uw kind mee naar school te geven.

Met vriendelijke groeten,
Marijn Nijboer (student onderzoeker)
Jelte Bouma (coördinator Wetenschapswinkel Geneeskunde en Volksgezondheid)

Ik heb er bezwaar tegen dat _____(naam zoon/dochter) anoniem deelneemt aan het onderzoek en verzoek daarom dat mijn kind de vragenlijsten niet invult.

Datum: _____

Handtekening ouder/verzorger: _____

Appendix 3: questionnaire for children

Rijks*universiteit* **Groningen**

Wetenschapswinkel
Geneeskunde en Volksgezondheid
UMCG

Faculteit der Gedrags- en Maatschappijwetenschapp en
Vakgroep Orthopedagogiek

Kind en burnout?

Een onderzoek naar de vraag of kinderen burnout klachten kunnen krijgen.

Vragenlijst

Hallo,

Hoe gaat het met je?
Hoe voel je je?
Graag willen we dat van je weten.

Lees elke vraag goed door, maar denk er niet te lang over na. Kies het antwoord dat het beste bij je past en kruis het hokje aan.

Belangrijk: Dit is geen examen! Er zijn geen goede of foute antwoorden. Het is wel belangrijk dat je de vragenlijst helemaal en zo duidelijk mogelijk invult. Probeer bij het antwoorden aan de afgelopen week te denken.

Je hoeft je antwoorden aan niemand te laten zien. Niemand die je kent zal deze vragenlijst kunnen inzien nadat je hem hebt ingevuld en in de envelop hebt gedaan.

Het invullen van de vragenlijst duurt ongeveer 45 minuten.

Alvast bedankt voor het invullen van de vragenlijst!

Marijn Nijboer

1. Algemeen

1. Hoe heet je?

_____

2. Ben je een jongen of een meisje?

O Jongen

O Meisje

3. Wat is je geboortedatum?

____ _____ ____

Dag Maand Jaar

4. Hoeveel jaar ben je?

_____ Jaar

5. In welke groep zit je?

Groep _____

6. In welke plaats woon je?

_____

7. Wie wonen er bij je thuis?

_____

8. Heb je een (langdurige) chronische ziekte of handicap?

O Nee

O Ja Welke? _____

2. Lichamelijke activiteiten en gezondheid

9. Hoe is je gezondheid in het algemeen?

   O Heel erg goed

   O Erg goed

   O Goed

   O Redelijk

   O Slecht

Denk aan de afgelopen week…

	helemaal niet	bijna niet	gemiddeld	nogal	helemaal
10. Heb je je fit en gezond gevoeld?	O	O	O	O	O
11. Ben je lichamelijk actief geweest (bijvoorbeeld, hardlopen, sporten, fietsen)?	O	O	O	O	O
12. Heb je goed kunnen rennen?	O	O	O	O	O

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
13. Heb je je vol energie gevoeld?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

3. Gevoelens

Denk aan de afgelopen week…

	helemaal niet	bijna niet	gemiddeld	nogal	helemaal
14. Is je leven plezierig geweest?	O	O	O	O	O
15. Heb je je blij gevoeld dat je leeft?	O	O	O	O	O
16. Heb je je tevreden gevoeld over je leven?	O	O	O	O	O

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
17. Ben je in een goed humeur geweest?	O	O	O	O	O
18. Heb je je vrolijk gevoeld?	O	O	O	O	O
19. Heb je lol gehad?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

4. Humeur

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
20. Heb je het gevoel gehad dat je alles verkeerd doet?	O	O	O	O	O
21. Heb je je verdrietig gevoeld?	O	O	O	O	O
22. Heb je je zo naar gevoeld dat je helemaal niks wilde doen?	O	O	O	O	O
23. Heb je het gevoel gehad dat alles in je leven misgaat?	O	O	O	O	O
24. Ben je het wel eens zat geweest?	O	O	O	O	O
25. Heb je je eenzaam gevoeld?	O	O	O	O	O
26. Heb je het gevoel gehad dat je onder druk stond?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

5. Over jezelf

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
27. Ben je tevreden geweest met jezelf?	O	O	O	O	O
28. Ben je tevreden geweest over je kleding?	O	O	O	O	O
29. Heb je je zorgen gemaakt over je uiterlijk?	O	O	O	O	O
30. Ben je jaloers geweest op het uiterlijk van andere jongeren?	O	O	O	O	O
31. Zou je iets willen veranderen aan je lichaam?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

6. Vrije tijd

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
32. Heb je voldoende tijd voor jezelf gehad?	O	O	O	O	O
33. Heb je in je vrije tijd de dingen kunnen doen die je wilt doen?	O	O	O	O	O
34. Heb je genoeg de gelegenheid gehad om buiten te zijn?	O	O	O	O	O
35. Heb je voldoende tijd gehad om vrienden te ontmoeten?	O	O	O	O	O
36. Heb je zelf kunnen bepalen wat je in je vrije tijd doet?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

7. Familie en thuis

Denk aan de afgelopen week…

	helemaal niet	bijna niet	gemiddeld	nogal	helemaal
37. Heb je het gevoel gehad dat je ouders je begrijpen?	O	O	O	O	O
38. Heb je het gevoel gehad dat je ouders van je houden?	O	O	O	O	O

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
39. Heb je je thuis gelukkig gevoeld?	O	O	O	O	O
40. Hebben je ouders voldoende tijd voor je gehad?	O	O	O	O	O
41. Hebben je ouders je eerlijk behandeld?	O	O	O	O	O
42. Heb je met je ouders kunnen praten als je dat wilde?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

8. Geldzaken

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
43. Heb je genoeg geld gehad om dezelfde dingen te doen als je vrienden?	O	O	O	O	O
44. Heb je genoeg geld gehad voor je uitgaven?	O	O	O	O	O

Denk aan de afgelopen week…

	helemaal niet	bijna niet	gemiddeld	nogal	helemaal
45. Heb je genoeg geld gehad om dingen met je vrienden te doen?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

9. Vrienden

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
46. Heb je tijd doorgebracht met je vrienden?	O	O	O	O	O
47. Heb je dingen met andere jongeren ondernomen?	O	O	O	O	O
48. Heb je plezier gehad met je vrienden?	O	O	O	O	O
49. Hebben jij en je vrienden elkaar geholpen?	O	O	O	O	O
50. Heb je met je vrienden over alles kunnen praten?	O	O	O	O	O
51. Heb je op je vrienden kunnen vertrouwen?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

10. School en leren

52. Aan mijn huiswerk beginnen

- O Doe ik graag
- O Kost mij vaak moeite

53. Hard leren

- O Doe ik graag
- O Doe ik niet zo graag
- O Vind ik helemaal niet fijn

54. Huiswerk maken vind ik

- O Erg onplezierig
- O Niet zo leuk
- O Wel leuk

55. Naar school gaan

- O Doe ik graag
- O Doe ik vaak met tegenzin
- O Is iets waar ik een hekel aan heb

Denk aan de afgelopen week…

	helemaal niet	bijna niet	gemiddeld	nogal	helemaal
56. Heb je het naar je zin gehad op school?	O	O	O	O	O
57. Is het goed gegaan op school?	O	O	O	O	O
58. Ben je tevreden geweest over je leraren?	O	O	O	O	O

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
59. Heb je goed kunnen opletten?	O	O	O	O	O
60. Ben je graag naar school gegaan?	O	O	O	O	O
61. Kon je goed overweg met de leraren?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

11. Jij en de anderen op school

Denk aan de afgelopen week…

	nooit	bijna nooit	soms	redelijk vaak	altijd
62. Ben je bang geweest voor andere jongeren?	O	O	O	O	O
63. Hebben andere jongeren je uitgelachen?	O	O	O	O	O
64. Ben je door andere jongeren gepest?	O	O	O	O	O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

12. Gedachten

De volgende 13 vragen gaan over gedachten die je kunt hebben of dingen die je kunt meemaken.
Kruis bij elke vraag één hokje aan. Kies het antwoord dat het beste bij jou past.
Denk niet te lang na over het antwoord, maar vul in gewoon wat jij denkt, dat kan niet goed of fout zijn.

65. Hoe vaak heb je het gevoel dat het je niet kan schelen wat er om je heen gebeurt?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
66. Hoe vaak is het gebeurd dat je je verbaasde over het gedrag van iemand die je goed dacht te kennen?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
67. Hoe vaak is het gebeurd dat iemand waarop je dacht te kunnen vertrouwen je teleur heeft gesteld?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
68. Hoe denk je dat je je zult voelen over dingen die je later, in de toekomst, gaat doen?	heel slecht O	slecht O	gewoon O	fijn O	heel fijn O
69. Hoe vaak heb je het gevoel dat je oneerlijk bent behandeld?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
70. Hoe vaak heb je het gevoel dat je in een onbekende situatie bent en je niet weet wat je moet doen?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
71. Hoe voel je je over de dingen die je elke dag doet?	heel slecht O	slecht O	gewoon O	fijn O	heel fijn O
72. Hoe vaak gebeurt het je dat je zelf niet helemaal begrijpt wat je denkt en voelt?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
73. Hoe vaak heb je gevoelens die je liever niet wilt hebben?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
74. Veel mensen – zelfs met een sterk karakter – hebben wel eens het gevoel een mislukkeling zijn. Hoe vaak heb jij je in het verleden zo gevoeld?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
75. Hoe vaak heb je het gevoel dat je niet precies weet wat er gaat gebeuren?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
76. Hoe vaak heb je het gevoel dat de dingen die je elke dag doet, niet zo belangrijk zijn?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O
77. Hoe vaak heb je gevoelens waarvan je niet zeker weet of je ze onder controle kunt houden?	nooit O	bijna nooit O	soms O	vaak O	heel vaak O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

13. Zorgen en problemen

De volgende 10 vragen gaan over zorgen maken en gedachten die je kunt hebben als je een probleem hebt.
Kruis bij elke vraag één hokje aan. Kies het antwoord dat het beste bij jou past. Denk niet te lang na over het antwoord, maar vul in gewoon wat jij denkt, dat kan niet goed of fout zijn.

78.	Ik maak me vaak zorgen.	niet waar O	beetje waar O	heel erg waar O
79.	Als ik een probleem heb, denk ik vaak 'waarom ik?'	niet waar O	beetje waar O	heel erg waar O
80.	Vervelende dingen kan ik moeilijk vergeten.	niet waar O	beetje waar O	heel erg waar O
81.	Ik maak me geen zorgen over problemen. Ik los ze gewoon op.	niet waar O	beetje waar O	heel erg waar O
82.	Als ik een probleem heb, kan ik niet ophouden er aan te denken.	niet waar O	beetje waar O	heel erg waar O
83.	Als ik iets fout doe, ben ik bang voor wat er gaat gebeuren.	niet waar O	beetje waar O	heel erg waar O
84.	Als ik een probleem heb, denk ik er de hele tijd aan.	niet waar O	beetje waar O	heel erg waar O
85.	Als ik een probleem wil oplossen, ben ik bang dat ik het erger maak.	niet waar O	beetje waar O	heel erg waar O
86.	Als ik een probleem heb, denk ik vaak hoe erg het is.	niet waar O	beetje waar O	heel erg waar O
87.	Als ik niet precies weet wat er aan de hand is, denk ik vaak dat er iets ergs gaat gebeuren.	niet waar O	beetje waar O	heel erg waar O

Controleer alsjeblieft of je bij elke vraag één kruisje hebt gezet!

14. Overige vragen

Denk aan de afgelopen week…

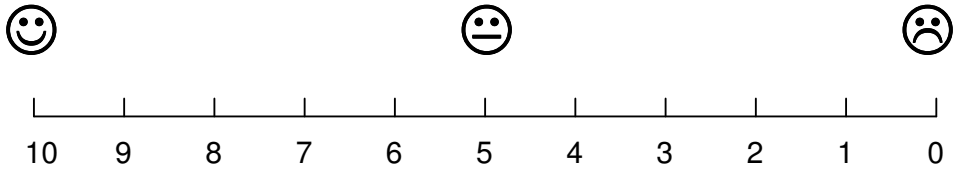
88. Moest je dingen doen die je niet leuk vindt?

O Nee

O Ja Welke? _____

89. Hoe zou je in het algemeen je kwaliteit van leven beoordelen? (ben je tevreden met je leven?)

(Omcirkel één cijfer op de schaal hieronder, die het beste bij je past)



Dankjewel voor het invullen van alle vragen!!!

Appendix 4: questionnaire for teachers (part 1)

Toelichting bij klassenoverzicht

Gelieve de tabel voor alle leerlingen in de klas in te vullen. Hieronder volgt per onderdeel een toelichting.

1. Ziekte, stoornis, leerprobleem
Is deze leerling bekend met een ziekte, stoornis (bv. adhd, pdd-nos) of leerprobleem?
- Nee
- Ja, welke?

Indien ja, vult u dan in welke.
Indien nee, dan hoeft u niks in te vullen.

2. Prestaties
Over het algemeen presteert deze leerling…
- Beneden gemiddeld
- Gemiddeld
- Boven gemiddeld

Kruis het bijbehorende hokje aan.

3. Afwezig
Is deze leerling vaak afwezig?
- Nooit tot minder dan gemiddeld
- Gemiddeld
- Vaak tot meer dan gemiddeld

Kruis het bijbehorende hokje aan.

4. Ouders gescheiden
Heeft dit kind een echtscheiding meegemaakt?
- Nee
- Ja

Kruis het bijbehorende hokje aan.

5. Opleiding ouders
Wat is het opleidingsniveau van de ouders?
- Laag (basisonderwijs, vbo, lbo)
- Gemiddeld (mavo, mbo)
- Hoog (havo, vwo, hbo, universiteit)

Kruis het bijbehorende hokje aan.

6. Eisen ouders
De eisen die de ouders aan dit kind stellen zijn voor dit kind…
- Te laag
- Passend
- Te hoog

Kruis het bijbehorende hokje aan.

	Leerling	**1. Ziekte, stoornis, leerprobleem**	**2. Prestaties**			**3. Afwezig**			**4. Ouders gescheiden**		**5. Opleiding ouders**			**6. Eisen ouders**		
			Beneden gemid-deld	*Gemid-deld*	*Boven gemid-deld*	*Nooit / minder dan gemiddeld*	*Gemid-deld*	*Vaak / meer dan gemiddeld*	*Nee*	*Ja*	*Laag*	*Gemid-deld*	*Hoog*	*Te laag*	*Pas-send*	*Te hoog*
1																
2																
3																
4																
5																
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Appendix 5: questionnaire for teachers (part 2)

Sterke kanten en moeilijkheden

Naam leerling:_____

Jongen / meisje (doorhalen wat niet van toepassing is)

Wilt u alstublieft voor iedere vraag een kruisje zetten in het vakje voor “niet waar”, “beetje waar” of “zeker waar”. Het is van belang dat u alle vragen zo goed mogelijk beantwoordt, ook als u niet helemaal zeker bent of als u de vraag raar vindt. Wilt u alstublieft uw antwoorden baseren op het gedrag van het kind van de laatste zes maanden of het huidige schooljaar.

1.	Rusteloos, overactief, kan niet lang stilzitten.	niet waar O	beetje waar O	zeker waar O
2.	Klaagt vaak over hoofdpijn, buikpijn, misselijkheid.	niet waar O	beetje waar O	zeker waar O
3.	Nogal op zichzelf, neigt er toe alleen te spelen.	niet waar O	beetje waar O	zeker waar O
4.	Heeft veel zorgen, lijkt vaak over dingen in te zitten.	niet waar O	beetje waar O	zeker waar O
5.	Constant aan het wiebelen of friemelen.	niet waar O	beetje waar O	zeker waar O
6.	Heeft minstens één goede vriend of vriendin.	niet waar O	beetje waar O	zeker waar O
7.	Vaak ongelukkig, in de put of in tranen.	niet waar O	beetje waar O	zeker waar O
8.	Wordt over het algemeen aardig gevonden door andere kinderen.	niet waar O	beetje waar O	zeker waar O
9.	Gemakkelijk afgeleid, heeft moeite om zich te concentreren.	niet waar O	beetje waar O	zeker waar O
10.	Zenuwachtig of zich vastklampend in nieuwe situaties, verliest makkelijk zelfvertrouwen.	niet waar O	beetje waar O	zeker waar O
11.	Wordt getreiterd of gepest door andere kinderen.	niet waar O	beetje waar O	zeker waar O
12.	Denkt na voor iets te doen.	niet waar O	beetje waar O	zeker waar O
13.	Kan beter opschieten met volwassenen dan met andere kinderen.	niet waar O	beetje waar O	zeker waar O
14.	Voor heel veel bang, is snel angstig.	niet waar O	beetje waar O	zeker waar O
15.	Maakt opdrachten af, kan de aandacht goed vasthouden.	niet waar O	beetje waar O	zeker waar O

Dank u wel voor uw medewerking

Appendix 6: Interpretation of Kidscreen dimensions

Kidscreen-52 dimensions	Definition	Low score	High score
Physical well-being	This dimension explores the level of the child's/adolescent's physical activity, energy, and fitness. Level of physical activity is examined with reference to this child's/adolescent's ability to get around the home and school, and to play or do physically demanding activities such as sports, since a child's/adolescent's impairment does also affect physical activity. The dimension also looks at the child's/adolescent's capacity for lively or energetic play. In addition, the extent to which a child/adolescent or adolescent feels unwell and complains of poor health is examined.	Physically exhausted, physically unwell, feeling unfit, having low energy.	Physically fit, active, healthy, energetic.
Psychological well-being	This dimension examines the psychological well-being of the child/adolescent including positive emotions and satisfaction with life. It specifically reveals the positive perceptions and emotions experienced by the individual. The questions look at how much a child/adolescent experiences positive feelings such as happiness, joy, and cheerfulness. It also reflects the person's view of their satisfaction with life so far.	No pleasure in life, dissatisfaction with life.	Happy, views life positively, satisfied with life, pleased, cheerful.
Moods and emotions	This dimension covers how much the child/adolescent experiences depressive moods and emotions and stressful feelings. It specifically reveals feelings such as loneliness, sadness, sufficiency/insufficiency, and resignation. Furthermore, this dimension takes into account how distressing these feelings are perceived to be. This dimension shows a high score in QoL if these negative feelings are rare.	Feels depressed, unhappy, in a bad mood.	Feeling good, feeling in a good mood.
Self-perception	This dimension explores the child's/adolescent's perception of self. It includes whether the appearance of the body is viewed positively or negatively. Body image is explored by questions concerning satisfaction with looks as well as with clothes and other personal accessories. The dimension examines how secure and satisfied the child/adolescent feels about him/herself as well as his/her appearance. This dimension reflects the value somebody assigns to him/herself and the perception of how positively others value him/her.	Negative body image, self-rejection, unhappy/dissatisfied with self, having low self-esteem, feeling uncomfortable with his/her appearance.	Self-confident, satisfied with him/herself, positive body image, happy with him/herself, having good self-esteem, comfortable with his/her appearance.

Continued…

Kidscreen-52 dimensions	Definition	Low score	High score
Autonomy	This dimension looks at the opportunity given to a child/adolescent to create his/her social and leisure time. It examines the child's/adolescent's level of autonomy, seen as an important developmental issue for creating an individual identity. This refers to the child's/adolescent's freedom of choice, self-sufficiency, and independence. In particular, the extent to which the child/adolescent feels able to shape his/her own life as well as being able to make decisions about day-to-day activities is considered. The dimension also examines if the child/adolescent feels sufficiently provided with opportunities to participate in social activities, particularly in leisure activities and pastimes.	Restricted, oppressed, dependent.	Feeling free to decide, independent, autonomous.
Parent relation and home life	This dimension examines the relationship with the parents and the atmosphere in the child's/adolescent's home. It explores the quality of the interaction between the child/adolescent and parent or carer, and the child's/adolescent's feelings towards parents/carers. Particular importance is attached to whether the child/adolescent feels loved and supported by the family, whether the atmosphere at home is comfortable or not and also if the child/adolescent feels treated fairly.	Feeling alone, overlooked, not appreciated, perceives parents as unavailable/unfair.	Feeling secure, supported and loved, feeling well understood/ well cared-for, perceives parents as available/fair.
Financial resources	The perceived quality of the financial resources of the child/adolescent is assessed. The dimension explores whether the child/adolescent feels that he/she has enough financial resources to allow him/her to live a lifestyle which is comparable to other children/adolescents and provides the opportunity to do things together with peers.	Feeling finances are restricting life style, feeling financially disadvantaged.	Feeling satisfied with financial resources, feeling well-off, enjoying financial resources.
Social support and peers	This dimension examines the nature of the child's/adolescent's relationships with other children/adolescents. Social relations with friends and peers are considered. The dimension explores the quality of the interaction between the child/adolescent and peers as well as their perceived support. The questions examine the extent to which the child/adolescent feels accepted and supported by friends and the child's/adolescent's ability to form and maintain friendships. In particular, aspects concerning communication with others are considered. It also explores the extent to which the person experiences positive group feelings and how much he/she feels part of a group and respected by peers and friends.	Feeling excluded, not accepted by peers, not supported by peers, not able to rely on peers.	Feeling accepted, supported and included in peer group, able to rely on peers.

Continued…

Kidscreen-52 dimensions	Definition	Low score	High score
School environment	This dimension explores a child's/adolescent's perception of his/her cognitive capacity, learning and concentration, and his/her feelings about school. It includes the child's/adolescent's satisfaction with his/her ability and performance at school. General feelings about school, such as whether school is an enjoyable place to be, are also considered. In addition, the dimension explores the child's view of the relationship with his/her teachers. For example, questions include whether the child/adolescent gets along well with his/her teachers and whether the teachers are perceived as being interested in the student as a person.	Disliking school and/or teachers, negative feelings about school, not doing well.	Feeling happy at school and doing well, enjoying school life.
Social acceptance (bullying)	This dimension covers the aspect of feeling rejected by peers in school. It explores both the feeling of being rejected by others as well as the feeling of anxiety towards peers. A student is being bullied when another student or a group of students say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she doesn't like. But it is not bullying when two students of about the same strength quarrel or fight. This definition is fairly standard and has been used over a number of years in several studies. This dimension shows a high score in QoL if these negative feelings are rare.	Feeling tormented by peers, bullied, feeling rejected by peers.	Not feeling bullied, feeling respected and accepted by peers.

Source: The Kidscreen Group Europe (2006). *The Kidscreen Questionnaire. Quality of life questionnaires for children and adolescents, handbook*. Lengerich: Pabst Science Publishers.

Appendix 7: correlations between independent variables

	Gender	*Ambitions*	*Achievement level*	*Disorders/ disabilities*	*Coping*	*Self-esteem*	*Academic stressors*	*Social acceptance*	*Peer problems*	*Family stressors*	*Parental divorce*	*Family status*	*Expectations/ demands*	*SES*	*Financial resources*	*Social support*	*Life events*	*Sense of coherence*	*Autonomy*
Gender	1.00	.26***	.09	.18*	.07	-.23***	.19***	-.06	-.11*	.03	-.08	-.04	.10*	-.01	.12*	.12*	.09	-.05	.04
Ambitions	.26***	1.00	.27***	.20*	-.07	.09	.48***	.15**	-.12*	.20***	.06	.03	.04	.22***	.24***	.13*	.00	.21***	.18***
Achievement level	.09	.27***	1.00	.21*	-.07	-.01	.13**	.14**	-.07	-.01	.08	.04	-.02	.41***	.02	.03	-.07	.08	.02
Disorders/ disabilities	.18*	.20*	.21*	1.00	-.02	-.07	.03	-.01	.02	.03	-.11	-.08	.04	.07	.02	.07	.13	.09	.07
Coping	.07	-.07	-.07	-.02	1.00	-.40***	-.29***	-.40***	.11*	-.36***	-.17**	-.16**	.04	-.09	-.26***	-.32***	-17**	-.64***	-.37***
Self-esteem	-.23***	.09	-.01	-.07	-.40***	1.00	.30***	.37***	-.06	.46***	.14**	.13*	-.08	.08	.26***	.22***	-.14**	.53***	.40***
Academic stressors	.19***	.48***	.13**	.03	-.29***	.30***	1.00	.36***	-.19***	.45***	.07	.07	.02	.14**	.36***	.51***	-.05	.47***	.49***
Social acceptance	-.06	.15**	.14**	-.01	-.40***	.37***	.40***	1.00	-.34***	.32***	.02	.03	-.08	.15**	.34***	.36***	-.04	.52***	.36***
Peer problems	-.11*	-.12*	-.07	.02	.11*	-.06	-.19***	-.34***	1.00	-.21***	.05	.05	.10*	-.07	-.26***	-.30***	-.02	-.29***	-.20***
Family stressors	.03	.20***	-.01	.03	-.36***	.46***	.45***	.32***	-.21***	1.00	.16**	.12*	-.06	.08	.41***	.43***	-.15**	.58***	.55***
Parental divorce	-.08	.06	.08	-.11	-.17**	.14**	.07	.02	.05	.16**	1.00	**.85*** **	.02	.14**	.05	.02	**-.93*** **	.09	.04
Family status	-.04	.03	.04	-.08	-.16**	.13*	.07	.03	.05	.12*	**.85*** **	1.00	.05	.08	.05	.07	**-.88*** **	.11*	.07
Expectations/ demands	.10*	.04	-.02	.04	.04	-.08	.02	-.08	.10*	-.06	.02	.05	1.00	.13**	-.01	.03	-.01	-.06	-.10*
SES	-.01	.22***	.41***	.07	-.09	.08	.14**	.15**	-.07	.08	.14**	.08	.13**	1.00	.09	.00	-.12*	.14**	-.01
Financial resources	.12*	.24***	.02	.02	-.26***	.26***	.36***	.34***	-.26***	.41***	.05	.05	-.01	.09	1.00	.34***	-.07	.42***	.40***
Social support	.12*	.13*	.03	.07	-.32***	.22***	.51***	.36***	-.30***	.43***	.02	.07	.03	.00	.34***	1.00	-.05	.50***	.56***
Life events	.09	.00	-.07	.13	-17**	-.14**	-.05	-.04	-.02	-.15**	**-.93*** **	**-.88*** **	-.01	-.12*	-.07	-.05	1.00	-.12*	-.08
Sense of coherence	-.05	.21***	.08	.09	-.64***	.53***	.47***	.52***	-.29***	.58***	.09	.11*	-.06	.14**	.42***	.50***	-.12*	1.00	.56***
Autonomy	.04	.18***	.02	.07	-.37***	.40***	.49***	.36***	-.20***	.55***	.04	.07	-.10*	-.01	.40***	.56***	-.08	.56***	1.00

* p < .05, ** p < .01, *** p < .001 (Pearson's r)